

MARINE RECORD

ESTABLISHED 1878.

VOL. XXII, No. 46.

CLEVELAND---NOVEMBER 16, 1899---CHICAGO.

\$2.00 Per Year. 5c. Single Copy.

LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

PRESIDENT.	
FRANK J. FIRTH,	Philadelphia.
1ST VICE-PRESIDENT.	
CAPT. THOS. WILSON,	Cleveland.
SECRETARY.	
CHARLES H. KEEP,	Buffalo.
TREASURER.	
GEORGE P. MCKAY,	Cleveland.
COUNSEL.	
HARVEY D. GOULDER,	Cleveland.
EXECUTIVE AND FINANCE COMMITTEE.	
JAMES CORRIGAN, Chairman,	Cleveland.
COMMITTEE ON LEGISLATION.	
GIBSON L. DOUGLAS, Chairman,	Buffalo.
COMMITTEE ON AIDS TO NAVIGATION.	
GEORGE P. MCKAY, Chairman,	Cleveland.

THE HOLLAND SUBMARINE BOAT A SUCCESS.

The Holland submarine torpedo boat underwent on Nov. 3, near Long Island, N. Y., an official trial before the Naval Board of Inspection and Survey, with results stated by the members of the board to be very satisfactory, which means that its purchase by the government is virtually assured. In order to make a trial submerged run of two miles two marking buoys were placed a mile apart, and a boat to serve as a torpedo target was anchored near one of these buoys. When all was ready the Holland sank to a depth of ten feet while going at full speed. While submerged she made no disturbance upon the surface. Traveling at the rate of eight knots an hour, she made the distance from start to turning point in 9½ minutes. Arriving at the end of the mile she shot to the surface, but ten seconds later again disappeared. Within ten seconds she corrected her course, having deviated only seventy feet from the course, and fired a regulation Whitehead torpedo, which went on its way towards the target 800 yards away, and was well on the path back to the starting point before the missile had run its course. The return trip was made in about the same time as the outward run, and was equally a success. Another trip was undertaken, the results being the same, except that instead of rising to the surface to discharge the missile the Holland fired it while submerged. Almost before the missile was well on its journey the boat was on its way back. The torpedo came so near the flagpole used as a target that it was evident no vessel could have escaped from the destructive fire of the torpedo.

TRAINING SEAMEN.

The Navy's enlisted force is short four thousand men and apprentices, and the prospects of the necessary increase are not promising. The merchant marine, which finds employment practically for all the able seamen and ordinary seamen along the coast is the chief cause of this shortage. Coal passers and landsman can be found in abundance, but neither class are fit for deck duty until a year or more of training. Six months ago the Navy had nearly sixteen thousand men, or about 1,500 short of the quota, and 1,200 apprentices of the 2,500 allowed. Now the total strength of both is less than 15,000. There are now scarcely sufficient men to man the vessels in commission, and none available for the battleships and other vessels that will be in condition for service in the next three months. The Department's plan now is to instruct its own seamen. It takes the green landsman from the lake region or Central West, whose experience on water has been limited to river steamers and ferry-boats, and in

eight months turns them out full-fledged able seamen. This policy was adopted several months ago, and is now being successfully carried out, so that within eight months there will be at least 1,600 men available from this source for sea duty.

The Hartford, rebuilt and equipped with modern engines and ordnance, sails from San Francisco this month on her way to Hampton Roads with 400 of these landsman, enlisted on the Pacific slope. The cruise of this ship will be one of considerable length. She will proceed to Honolulu for a stay of two weeks, thence down to Valparaiso, through the Straits to the Falkland Islands and up to the West Indies, stopping at most of the important ports, and reaching Old Point about April 15. She will then be permanently stationed on that station as a receiving ship for landsmen. Down in the West Indies the old Lancaster is now cruising about with 300 landsmen on board, and fitting out at Philadelphia is the Dixie, which will be used for training work also. With these ships constantly employed in the instruction and training of men for the Navy the Department hopes to maintain the quota to its full limit within a year or two. The reason for the deficiency in the apprentice strength is lack of quarters for them at the stations of Newport and Yerba Buena Island, San Francisco. At both places barracks are building for the accommodation, with present quarters, of 2,500 boys.

THE MARCONI SYSTEM.

It has been definitely settled that there will be no test of the Marconi system of wireless telegraphy under the direction of Marconi. There have been several reasons for this. It is stated officially at the War Department that there was no necessity for the expenditure of any large sum of money for this purpose, as the officers of the Signal Corps, and particularly Capt. Squires, are thoroughly familiar with the Marconi system as now developed. Marconi was told by officers of the department that if he could send messages a distance of about forty miles the army would take the matter up, but they have had sufficient guarantee that messages can be sent about twenty miles. They now desire to go beyond this. The Army and Navy Journal states that experiments will continue, under the direction of the officers of the Signal Corps, but entirely independent of the inventor of the system. In his annual report, General Greeley tells us that the wireless telegraphy has been constantly under investigation and test by his office during the past two years, and experiments will be continued. Although at present the messages cannot be directed accurately to a given point to the exclusion of other points, nor can interruptions be effectively prevented from other transmitters, yet some progress has already been made in directing the radiations. It is not believed that this system will supplant or materially change the present long cable methods, though it is well worthy of attention. There is no reasonable doubt that in the immediate future wireless telegraphy will replace, with equal advantage to commerce and the army, the military cables now necessary for connecting various harbor fortifications. It should be equally efficacious in insuring uninterrupted communication with islands, as well as to and from lighthouses, ships, and signal stations, either on the immediate coasts or moderate distances at sea. It should also prove of value as a means of connecting the islands of the West Indies, Hawaii and the Philippines, which are within the range of its action.

LAKE grain shippers are objecting to the action of the railroads in withholding cars at Buffalo, while offering to take all grain offered at Chicago all rail. The tendency of this arrangement is to create a blockade at Buffalo, thereby stopping lake shipments to that port and throwing the business to the railroads for a long haul.

THE WORLD'S MERCHANT TONNAGE.

The annual statistics from the French on merchant tonnage, now in its thirtieth edition, gives an interesting resume of the state of the world's shipping in respect of numbers of bottoms and tonnage. Having regard to sailing ship tonnage, in vessels of 50 tons and upwards, the present return shows a decrease of 1,018 vessels and 346,143 tons on the figures which were presented a year ago. Of the sailing vessels which Le Repertoire regards, there are now but 27,867, with a measurement of 8,347,626 tons. The shrinkage is very little under a quarter of a million of tons. Norway has shrunk 187,000 tons. Greece has lost 40,000 tons, and Spain 11,000; whilst Germany has gained 92,000 tons, France 30,000 tons, Italy 29,000 tons, and Turkey 9,000 tons. In steam tonnage the process is very different. The world's total here is 11,456 vessels, with a gross tonnage of no less than 19,711,382 tons, reckoning only vessels of 100 tons gross and upwards. A year ago the tonnage was 824,250 tons less, but it was contained in 120 more bottoms, so that there is a distinct, if not very great, increase in the average size. Great Britain has 5,453 steamships, against 900 in the case of Germany, the next in the list. Norway is third in point of numbers with 657, the United States fourth with 551, and France fifth with 526. Sweden has 497, Russia 435, Spain 377, and Japan 332. Regarding tonnage instead of mere numbers, the order is somewhat different. Great Britain heads the list with over eleven millions of tons, her figure of the previous year being increased by about 95,000 tons. Germany again comes second with 1,873,000 tons. She has increased her total by 248,000 tons. France, though she has fewer steamers than the States, has a better average in size. She comes third in steam tonnage with 986,000 tons—an increase of 33,000 tons. The United States have 971,000 tons, against 810,000 tons the previous year. The decrease here is probably owing to the fact that the present figures show against those of a year exceptionally swollen by the exigencies of a naval war. Norway is fourth with 672,000 tons, against 628,000 tons a year before. Spain has increased her figure by 31,000 tons to 552,000 tons. Japan, with an increase of no less than 114,000 tons, shows a very big jump. Italy is up 23,000 tons, and Russia 49,000 tons. The figures would be interesting in any event; but in connection with the work which we see the British mercantile marine fulfilling in the transportation of the army corps, the figures seem quite suggestive.

WHISTLING BUOYS.

One of the most interesting aids to navigation is the whistling buoys. They are clumsy affairs of steel, ranging in length from ten to twenty-five feet, with an air tank shaped like a pear, about ten feet high and nine feet in diameter, from which an eighteen-inch pipe, twenty feet long, protrudes.

This long pipe which runs down into the water is what furnishes the power for the whistle.

When the buoy is in the water the rolling of the waves up through the pipe and the pressure on the air in the tank forces it out through the whistle, and the well-known dismal sound is the result.

Whistle buoys in different parts of the coast are given a different pitch, in order that the mariner may, on a thick night, be able to know his locality by the difference in the sound.

It is the duty of the officer to adjust the pitch of these whistles when they get out of tune, and they have become so expert at it that they can detect and remedy the slightest variation from the correct pitch.

The adjustment of these whistles must be made while they are in place, and sometimes the great necessity of the marks on dangerous rocks obliges the men on the buoy boats to make these repairs in very rough weather.



DULUTH-SUPERIOR.

Special Correspondence to The Marine Record.

Capt. T. H. Pressnell, deputy United States clerk of the circuit and district court, mulcted Capt. John Shea, of the tug Jim Pullar, in bonds of \$300 for trial at Madison, Wis., on the charge of obstructing one of the channels in the Duluth-Superior harbor with a sack raft.

The dredge men engaged on the continuous contract on the Duluth-Superior harbor begin to feel confident that they will be able to work their dredges during the entire month of November. Ordinarily they are forced to quit on account of ice between the 18th and 23d of the month.

The Starke Dredging Co. of Milwaukee, has been awarded a contract for dredging 1,006,000 yards of earth out of the lower end of the Portage entry, Keweenaw Point. Meantime extensive work is going on at the upper end of the passage and in two years there will be a short cut of sixty miles for the largest vessels afloat on the lakes.

The Pioneer Fuel Co., of Duluth, which has one of the finest and largest coal docks in the world, will make further improvements to their property for handling coal this winter. Five new hoists for unloading anthracite coal are to be erected, and other facilities will be placed on the docks so as to keep ahead of the times in every particular.

The ore shipments from the Allouez ore docks this season will come near to reaching a total of 1,000,000 tons and it is more than probable that this mark will be reached. Up to the first of November the shipments were 798,696 tons. That is the top notch that was set by the officials early in the year and it is hoped that it will be accomplished.

Capt. Samuel Mitchell, who recently resigned the management of the Negaunee mine, will be succeeded by Capt. James Piper, of Tilden mine, Gogebic range, the change to take place December 1. Capt. Piper is considered one of the best mining men in the district. His early experience was obtained in mines at Ishpeming, having spent several years with the Cleveland Iron Co. before going to Gogebic.

Vessel owners and lumber shippers are far apart on the question of rates for the closing weeks of navigation. The vesselmen have reluctantly accepted a 50-cent reduction in lumber rates, but they still demand \$4 a thousand to Lake Michigan or Lake Erie. On the other hand the shippers demand a rate of \$3 a thousand for Lake Erie ports and \$3.50 for Chicago. The spread in the Lake Erie and Lake Michigan rates is usually 12½ cents, if any. During the past year or two there has been no difference in the rate.

According to the News Tribune of Monday it is learned that a prominent iron ore man of Duluth says that he expects to see the sales of ore for next season's requirements accomplished before January 1. The tonnage for the transportation of the ore has all been chartered, and it is expected that sales of big blocks of ore will be announced soon. It will be a rather remarkable and interesting fact hitherto without precedent, if the sales of ore are made, and the tonnage for transporting it is chartered, all in one season for the following season. The prices for ores will be nearly 100 per cent. greater than this year. Ore that the Minnesota Iron Co. delivered at the receiving ports this season for \$2.65 will bring better than \$5 a ton, in all probability, when the prices are fixed for next season. Late this season a small block of 15,000 tons of this same ore was sold for \$5.50.

It is pleasant to read or hear about good words spoken of marine men, more especially so when it comes from their home ports. In looking around for Duluth candidates for the mayorship, Captain Alex. McDougall has been prominently mentioned. Speaking of the well-known vesselman in this connection, a prominent Republican said: "I do not know if Captain McDougall will allow his name to be used or not, but he would be a valuable man to have at the head of the city affairs. He would give the city standing at home and abroad. There is no man more prominently identified with the city of Duluth than Capt. McDougall. He is a man that has stepped from the berth of mate to master on a steamboat, and from the position of master to a niche in the shipbuilding sphere that has made him famous in all parts of the civilized world. I think that Capt. McDougall should be urged to make the canvass. He would inspire confidence in the city such as no other man can that I know of. He has been a successful man, and a successful business man is the very kind of man for mayor. The election of Capt. McDougall as mayor would be a credit to the people of Duluth in the eyes of the people elsewhere, and that Capt. McDougall as mayor of Duluth would be a credit to the city nobody can deny. If we can get Capt. McDougall to run, Duluth people should lay aside any little political prejudices that they may feel and give him a rousing majority. It would be for the people's interests."

CHICAGO.

Special Correspondence to The Marine Record.

Grain freights have declined to 2 cents on corn to Buffalo with very little doing at that decreased rate.

The tug M. G. Hausler is on the dock receiving a general overhauling and repairs to stern bearing, calking and ironing.

Capt. Miles E. Barry returned from Ashtabula Monday morning. He reports the Sophia Minch in the same position as for some time past.

A. W. Lawrence, of Sturgeon Bay, has bought the scow-schooner German from Capt. John Hartnell for \$600. She will carry ties to west shore ports.

The friends of Jonas H. Gibbs, recently chief engineer of the steamer W. P. Ketcham, will be sorry to know that he is very sick at his home, 442 East 38th street, Chicago.

Capt. Dunham's schooners City of Sheboygan and A. Mosher have been stripped and will go into winter quarters. The schooners Stampoo, Charles Marshall, C. Nicholson and Norman have also been stripped.

William W. Preston, of St. Joseph, Mich., has sold the schooner Walhalla to Charles Cross, of St. James, Mich., and O'Neil Homing, of Milwaukee. The Walhalla has been carrying lumber to St. Joseph from Manistee two years.

Judge C. C. Kohlsaat in the United States district court rendered an important decision in the drainage canal case on Saturday holding that the federal court has jurisdiction in the case and refusing to remand it. It is now believed that the canal will be opened Dec. 1.

Messrs. O. S. Richardson & Co., 215 Dearborn street, shippers of coal, in their November circular make the following quotations on anthracite to dealers at their yards and docks: Grate, \$5.50; egg and stove, \$5.75; chestnut, \$6; No. 2 nut, \$5, and pea \$3.25 per net ton.

The Arnold Transportation Co., of Mackinaw, has contracted for a steel passenger steamer to be built by the firm of Johnston Bros., of Ferrysburg, Mich. The steamer will be 175 feet long, and a speedy, seaworthy craft. She will be placed on the route between Mackinac and Sault Ste. Marie.

A coal dealer at Waukegan, Ill., who was in Chicago this week complains bitterly of the shortage of soft coal in that town. He remarked to the writer: "It is almost impossible to get any coal shipped in from the outside. The Western Coal & Dock Co. have plenty of both hard and soft coal but that does not help the local dealer."

The Metropolitan Elevated Railroad Co. has settled the claims of the schooner D. R. Martin for damages by the payment of \$1,384.60 to Capt. S. R. Chamberlain, her owner. The Martin was dismasted in a collision with the railroad bridge early last June. The fault seemed to lie with the bridge, and Capt. Chamberlain demanded \$1,500 for his loss. His case was handled by Charles E. Kremer, Esq., and Attorney Gurley represented the railroad company.

The Chicago underwriters have again revised their schedules of rates. The changes are: 25 cents off the rate on grain in brick warehouses adjoining the elevators, but properly cut off. Credit for two Niagara hydrants and fire pump made 25 cents flat. Charge for non-use of electric lanterns suspended until January 10, 1900, to give opportunity to see how they work. Charge No 11 of schedule of 1 cent for each elevator leg is suspended when elevator legs, boots and spouts are constructed of metal. Grain dryer charges will be suspended on condition that written warranty is put in policies that dryer will not be operated during the life of insurance policies.

On the 8th inst. a party 12 Congressmen and 600 citizens of Chicago made a visit of inspection over the drainage canal of the sanitary district of Chicago. The party was carried in two special trains over the Atchison, Topeka & Santa Fe Ry., from Chicago to Lockport and return, the programme including stops at Campbell avenue, where the large 8-track drawbridge is being constructed; Willow Springs, where the rock excavation begins; at Lemont; and at Lockport, where are located the controlling works of the canal. The purpose for the trip was to familiarize Congressmen with the work which has been performed on this great feat of engineering, as important legislation having to do with the canal may yet come before Congress.

Chicago papers are authority for the statement that a new transportation company has been incorporated to establish a line of steamers running from Chicago to Montreal and possibly to Liverpool. The name of the incorporation is the Illinois Transit Company of Chicago. Heretofore only freight boats of the smaller class have been able to carry their cargoes unbroken between Chicago and Montreal, the larger boats being forced to transfer their cargoes in making the trip. By the recent enlargement of the canals, however, lake boats of large size may be run through to Montreal, and thence to European ports without change of cargo. Three large boats are to be specially fitted up for this route, and the intention is to add more vessels as the business may demand. It is said that the boats will have all the conveniences for passenger travel to be found on the finest lake vessels and that a great deal of attention will be given to this part of the traffic.

The bottom seems to have dropped entirely out of the Lake Michigan lumber market. There are very few cargoes offering, even in these days of scarcity of boats. It is

predicted that when the sailing fleet returns with the first north wind that more than half of them will strip for the winter from sheer lack of business. Offerings of cargo have been brisk enough up to a couple of weeks ago. Then the entire sailing fleet was blown into port and thrown on the market. Cargoes were found for all, but it took the life out of the business. The larger part of the schooners are back again, and the prospect for the remainder of the fall is far from encouraging. With cargoes scarce and freights low vesselmen are rather inclined to tie up for the winter rather than risk an encounter with a bad spell of weather. The prospect of disaster is not so much the reason given, but owners say that with sailors' wages at the figure now demanded, a few days' delay wind-bound in some port down the lake takes all the profits of the trip, and a good bit more.

The firm of Borden & Selleck Co., 48 to 50 Lake street, Chicago, reports the following completed contracts for coal conveying and coal handling machinery: Pioneer Fuel Co., Duluth, Minn., several thousand feet improved noiseless apparatus in the west. All the machinery is operated by the Borden & Selleck Co. patents. Geo. Lill & Co.'s new coal dock, situated on the north branch of the Chicago river, has been equipped with Harrison's conveyors, revolving disc screens, rope drives, car pullers and scrapers. The John A. Mead Co. supplied two towers and hoisting engines and two automatic clam-shell buckets for unloading vessels. The rail coal yard of Boyd, Stickney & Co., on Rockwell street, has been supplied with improved noiseless Harrison conveyors, twin gasoline engines, scraping machines, coal screens, etc., for putting coal in bins and to and from storage piles. They now have a thoroughly equipped plant for economically handling a large output of coal. The North Western Fuel Co.'s new rail coal yard at 63rd and State streets has been equipped with Harrison improved noiseless conveyors. They have also installed one 100-ton forty-two foot railroad track scale and one fifteen ton wagon scale of the Howe standard pattern. They have also supplied coal handling machinery to Wabash Coal Co., Athens, Ill.; Springfield Coal Mining Co., Pana, Ill.; Springfield Coal Co., Springfield, Ill. Revolving screens for salt to the Gulf Co., Morgan City, La. Five 80-ton, 46-foot railroad track scales for American Cereal Co., Chicago and Cedar Rapids, Iowa. Two railroad track scales for Fraser & Chalmers, for Melbourne, Australia; 80-ton railroad track scales for Independent Malting Co., Davenport, Iowa; Chicago & Northwestern R. R. Co., Janesville, Wis., an 80-ton, 42-foot railroad track scale; Gates Iron Works, Chicago, 100-ton, 42-foot Howe railroad track scale and O. S. Richardson & Co., Chicago, 80-ton, 42-foot Howe railroad track scale.

BUFFALO.

Special Correspondence to The Marine Record.

Lake marine underwriters are in clover. Since navigation opened there has been no serious loss on grain cargoes.

A. L. Janes, of this city, has designed a novel ice-cutting boat, which he desires the city to use to keep the harbor open.

Erie canal eastbound shipments of grain during October were 3,590,000 bushels, which is better than for the preceding month.

The total number of tons carried on the Erie canal up to Nov. 1 was 3,151,679, as compared with 2,352,638 during the same period last year.

The schooner Sophia Minch is still on the beach at Ashtabula. Capt. Miles Barry has spent a large amount of money trying to get her off.

The Maytham tug line is receiving a fair share of patronage although the boats of the syndicate known as the Great Lakes Towing Co. does the bulk of the work.

The cheap excursion trips given by the C. & B. Line, are meeting with a large patronage and doing much towards increasing the popularity of this already well known line of passenger boats.

Superintendent of Public Works Partridge stated on Monday, that the canals of the state would be closed on Friday, Dec. 1, except the Black river canal, which will be closed Nov. 21, unless the weather is so severe as to cause a suspension of navigation before the date set.

A triangular mix up occurred on Tuesday near the foot of Main Street. The tug Beyers punched into the tug Babcock and the schooner Mary E. McLachlan knocked her rudder off in fending off the Beyers.

A Cleveland correspondent states that the project to combine all the coal mines in the Massillon district has practically been accomplished and that the formal transfers of the various mines will be made within a few days. The capitalization of the new company is not known, but it is believed it will be between \$6,000,000 and \$8,000,000. The principal selling agency will be located in Cleveland. This report has been rumored for some time past and it is probable that the deal has now been accomplished.

The report that the Carnegie interests are going to start a shipyard is pronounced here by those who have inside information as a canard. I have been asked to say that the charter of the company, that is the Pittsburg Steamship Co., includes a whole lot more things besides building and operating, or managing vessel property, it is rather inclusive, but that doesn't say that each and every item in the charter will be immediately lived up to. The Carnegie interests are

furnishing material for others to build all the tonnage that is required for the time being so that there is no new shipyard in sight just at the moment.

Suits have been begun against the Lehigh railroad by several Cleveland vessel owners, who claim demurrage on vessels delayed by the failure of the Lehigh Co. to fill contracts which it made last spring to carry grain from Buffalo to New York city. The Lehigh has nearly 4,000 cars of package freight at Buffalo which it is unable to move. It is claimed that the withdrawal of English ocean freighters for transporting troops caused a congestion of cars at the seaboard and tied the railroads up. No demurrage clause was put in the grain bill of lading by the Lake Carriers last spring, as it was deemed unnecessary. The shippers can not be held under the bill of lading and the vesselmen ask that the courts hold the railroads responsible.

According to Supt. Partridge, the Erie canal will be officially closed on December 1st, unless frozen over before that date. Canalmen, of course, will have to abide by that order, but it is understood some movement is under way to ask the superintendent to keep the Erie canal open until about Dec. 10th, if possible. There is considerable work to be done yet which can not be completed if the canal is closed on Dec. 1st. For instance, it is alleged there is a vast quantity of stone to be delivered from the quarries at Hulberton, Medina and other stations along the canal to Buffalo, which is used for breakwater construction, grade crossing and street railway work. Canalmen have been discussing the matter and are of the opinion that they should have a show, in order to earn as much as possible during the remainder of the season. This, however, can only be done if the canal is kept open for a few weeks longer than the date set down by the superintendent.

CLEVELAND.

Special Correspondence to The Marine Record.

The Empire State and Badger State are going into winter quarters at Ashtabula.

Coal shipments picked up in good style here this week on account of the railroads furnishing a liberal supply of cars.

Mr. Alex. Smith, of New York formerly editor of Seaboard, is on a Western tour, he visited Cleveland on Wednesday.

It is now reported that Mr. Martin Mullen has secured a contract for the delivery of 300,000 tons of coal at the head of the lakes next spring. The order was placed by the Great Northern Railway.

John A. McGean, vice president of the Upson-Walton Co., ship chandlers, has accepted a position with the Bessemer Steamship Co., and will become general manager of that company in L. M. Bower's place as soon as matters are in readiness for the change.

The Co-operative Fishing Company is the name of a new company at Ashtabula, which has made application for a charter. It is capitalized at \$5,000. The contract has been let and the keel laid for a new fish tug to be 66 feet long, 14½ feet beam and 6½ feet deep.

Those two handy little steamers Duluth and Superior are now on the market for sale. They are well built, are excellent medium sized ice crushers, carry a great number of passengers and are fine little seaworthy sister boats. There are several points on the lakes that these pair of boats could work to advantage, that is, if the purchase price is all right, and as the owners are willing to dispose of the craft no doubt fair figures would be accepted.

Capt. Lewis Ryerse, of the large lake tug Niagara, brought down the disabled steamer Iron Age this week, and as usual, the captain visited all of his marine friends and acquaintances in a search for further business; notwithstanding the adverse report of the Weather Bureau regarding weather conditions on the lakes, he expected to leave port again yesterday morning. While here Capt. Ryerse promised to forward me a door plate from the lost steamer W. H. Gilcher, which some fishermen had picked up off Charlevoix. The wood round the metal plate is partly charred so that it would appear that the steamer was burned.

With reference to the recent newspaper reports of undue competition between the Rockefeller and Carnegie interests, the company states that these have no foundation in fact. The Rockefeller fleet carries the ore mined by the Carnegie Steel Co., from the mines leased from Rockefeller, about 1,500,000 tons per annum, but the Rockefeller boats, being unable to transport more of the Carnegie ore which was offered, the Carnegie Steel Co. was compelled to provide its own boats, its total shipments being 4,500,000 tons. There is no truth in the report that the Carnegie Steel Co. contemplates going into shipbuilding at Conneaut, although such a clause is embodied in the charter of the recently organized Pittsburg Steamboat Co.

A GOOD story comes from New Bedford, which will bear repeating. A party of men deserted from the whaling bark Canton and arrived Saturday at the Massachusetts whaling town. Among the men were a shoemaker, a milkman, a silversmith and a brass foundryman. The others had worked on farms all their life, or had driven teams, but the sea became in their eyes a life of adventure and fun. When the Canton prepared for a whaling trip last spring the sea fever seized upon them and they shipped, farmers and all. Not one had ever been outside of New Bedford harbor.

DETROIT.

Special Correspondence to The Marine Record.

On Friday the steamer Frank E. Kirby makes her last regular trip of the season to Lake Erie ports. After the return trip Saturday she will be laid up for the winter.

The steamer Iron King, after making one more Lake Superior trip, will go into winter quarters at this port. She will be given a thorough overhauling and receive new boilers.

Col. Lydecker has the privilege of choosing a successor to Capt. W. H. Mott, deceased, custodian of St. Clair flats canal. It is said the canal force is to be materially increased soon, for the betterment of the service.

Marine insurance policies expire on December 5, on wooden boats December 1. If freight rates don't double up from what they are now it is not likely that much of an effort will be made to prolong the season of navigation beyond those dates.

Capt. Horace Baker has gone to Leamington to raise the Canadian steamer Byron Terrice, which was burned four years ago. The upper works and part of the hull forward are gone, and about five feet of water is over the rest. If the boat is worth it she will be rebuilt.

Numerous complaints and suggestions from masters about the lighting of the channel across Lake St. Clair has led the light-house inspector for this district to formulate several plans for changes on the lines proposed. The matter will be submitted to the government this winter.

The Cleveland syndicate would not pay Mullen his price and he decided to give the big concern a fight. Martin Mullen is one of the best known coal men on the lakes. John Mullen, of Detroit, who has operated full docks on the Detroit river for a number of years, is a brother, and both men are excellently well posted in the coal business.

It is stated from Washington that plans for the new revenue cutter for the lakes will be ready for bidders next week. It is designed to have a cutter which can make a speed of fourteen knots, capable of being converted into an auxiliary war vessel, armed with a six-pounder on the fore-castle deck and so arranged that several guns can be mounted in times of emergency.

Boat No. 133, the steel freighter now building at the Wyandotte shipyard for the American Steamship Co., the new McMillan vessel line, will slide into the water next Saturday. The engines, boilers, spars and all upper works have been constructed at the shops and will be put into the steamer on her arrival here from Wyandotte for the complete equipment.

Unless the Harlem is sold within the next few days her owners, the Thompson Towing and Wrecking Co., Port Huron, will let a contract to repair the boat and lengthen her seventy-two feet. This will give her a capacity of 5,000 tons. They have disposed of all of their vessel property except the Harlem and the schooner John Wesley, and it is believed that they will charter the Harlem for the whole of next season if she remains in their hands, at least such is the report here this week.

The new boat at Wyandotte is a sister ship to the Angeline, recently completed for the Presque Isle Transportation Co. of Cleveland. She is 435 feet over all, 50 feet beam, and 28 feet molded depth. Engines are of about 1,450 horse-power, triple-expansion, with cylinders of 22, 35 and 58 inches diameter and 42 inches stroke. The boilers are 13 feet 2 inches in diameter and 11 feet 6 inches in length, having 40-inch furnaces and fitted with Howden hot draft appliances. The lighting equipment of this vessel will include electric masthead and sidelights. She will have steel spars, steam steering gear, stockless anchors, and, in fact, everything that is found on the best of the lake freighters.

George Y. Wisner, the Detroit member of the Deep Waterways Commission, smiled when he read a dispatch from Chicago stating that the National Geographic Society at Washington had been astonished when Alfred J. Henry, chief of the division of records and meteorological data of the Weather Bureau, Department of Agriculture, revealed to them in a lecture the plans to dam the Niagara river and thus raise the level of Lake Erie fully three feet, and the level of Lakes St. Clair, Huron and Michigan one foot. Mr. Wisner states that the plans have been known for some time and have been published in various papers on the chain of lakes. He says that so complete have been the arrangements that all that now remains to be done to get the plans on a working basis is the completion of a few minor details, mainly specifications, which are to be forwarded to Washington.

WHAT purports to be a great scheme of J. J. Hill, soon to be realized, is sent out from Minneapolis. The plan of the great railroad magnate is to control a world-belting transportation system rivaling that of the Canadian Pacific. The links in it are: Liverpool to New York, 3,053 miles, North Atlantic Steamship Co., present system; New York to Chicago, 1,000 miles, Baltimore & Ohio, in which Mr. Hill is already interested; Chicago to Minneapolis, 450 miles, Wisconsin Central, which he is credited with the intention of buying; Minneapolis to Seattle, 1,813 miles, Great Northern; Seattle to Hong Kong, 6,150 miles, Great Northern Pacific Steamship Co., for which a fleet of new 12,000 ton steamships is to be built. The whole line would thus be 12,500 miles long, and it would take 31 days to journey by it from Liverpool to Hong Kong.

FLOTSAM, JETSAM AND LAGAN.

Chief Engineer David Anderson, of the revenue cutter General Hancock, died at Grand Haven this week, of cancer of the stomach.

The new steel steamer Porto Rico, built by the Craig Ship Building Co., Toledo, has passed through the St. Lawrence canals in safety.

The Great Lakes Towing Company will have the tug Vigilant stationed at Detour, and the Monarch at Escanaba during the balance of the season. Both of the tugs have wrecking outfits.

For the third time in two months, the barge Taylor was libeled at Port Huron on Tuesday for sailors' wages, some time ago she was sold at marshal's sale, and bought by her former owners.

An injunction has just been granted by Judge Gray at Peoria in the circuit court of Fulton county against the Chicago District Drainage Trustees, forbidding removal of state dams across the Illinois river.

Capt. Edward Robinson, master of the steamer Monarch, has decided to quit sailing. He has been sailing for 37 years and has decided to remain ashore. The Monarch will not visit the head of the lakes this season. She will, however, make two short trips to Port Arthur before going to winter quarters.

An eastbound freight tariff between the Canadian Pacific, the Maine Central, the Fitchburg road and the Boston & Maine became effective October 31. It is on grain from Owen Sound to Boston and stations in New England taking Boston rates, and to stations on the Portland & Rumford Falls railway, the rates being as follows: Wheat, per bushel, 8 cents; corn, 7 cents; oats, 4½ cents. To points on the Maine Central railway, Freeport to Rockland inclusive, the rate will be 2 cents per 100 pounds higher.

Worked in hemp from keel to smokestack, a large sized model of the Olympia is one of the exhibits in the main building of the National Export Exposition at Philadelphia. The display is part of the exhibit of a local manufacturing concern which gets its share of attention by keeping in the public mind the achievements of Dewey and his gallant tars. Both the raw product and manufactured articles have been employed in making the man-of-war a realistic representation of the original. Balls of twine, sacks, heavy and thin rope, hemp in its original color and the dyed articles, all enter into the construction of the vessel. Even "water" is reproduced realistically, as well as with artistic taste. Spun into the finest fibre the hemp is arranged with telling effect against the sides of the Olympia.

The grain trade of Montreal is in a bad way. This season, underwriters raised the insurance rate on ocean vessels touching ports on the St. Lawrence. Just as those interested in the ports of Montreal and Quebec were preparing to show that the high rates were unwarranted came the wreck of the Scotsman, demonstrating the hazards of navigating those waters. Another, though perhaps not permanent, hindrance to the growth of Montreal is the dilatory policy of the government in providing modern grain elevating facilities at that port. The last straw to break the camel's back was the South African war, the British government having chartered ten of the largest grain carrying vessels trading to the port. E. S. Jacques, of the Northern Elevator Co., says: "Continuance of the war will result disastrously to Montreal. Already the grain elevators are packed to overflowing with grain which cannot be shipped owing to lack of tonnage. Contracts for large shipments to Montreal are being cancelled, as the grain men cannot afford to wait, and therefore send the grain to other ports."

LETTERS AT DETROIT MARINE POST OFFICE.

NOVEMBER 15th, 1899.

To get any of these letters, addressees or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of this list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

Bodjiac, Jos., Ohio.	McGannon, Walter.
Blair, Fred., Mocking Bird.	McLeod, D., U.S.S. Hancock
Barnes, Vernon S.	Northup, Henry.
Butlin, Walter.	Nadeu, Thos.
Croft, Sherman, Paul.	Otis, Burt, 2, Viking.
Clarke, Tom.	Olson, Capt. Andrew, Clara.
Connor, Alfred, Lentz.	Odette, Chas.
Dornbrook, Wm.	Powell, Theo. B., Adams.
Dill, R., Mohawk.	Rigney, Benj.
Dean, Mr., Troy.	Robinson, Mable.
Doyle, Arthur.	Rattray, Capt., Mocking Bird
Dapp, Aug., Outhwaite.	Robarr, J. J., Naples.
Emis, Edgar 2, Minneapolis.	Reagle, Martin.
Fox, Jas. H., Lentz.	Shipley, Harry W.
Fay, Harry, Owen.	Stuart, M. E.
Gill, P. R., Peerless.	Scanlon, R. E., Monitor.
Heath, G. W., Empire City.	Sherman, B. F., St. Paul.
Holden, G. E.	Vernor, Chas. E., Rose.
Howell, A. E.	Warner, Stanley.
Higgins, John, Russia.	Walsh, Michael.
Johnson, Olie.	White, Sam., 2, Geo. Stone.
Lyons, Capt. J. B., Oregon.	Watson, A. C.
Lavoie, Oliver, Australia.	Warner, Clarence.
Murphy, H. W., Magill.	Wagner, Jos.
Martin, Thos.	Welch, Andrew.
Moran, J. S.	Watson, Fred.

ELECTRICAL MACHINERY ON BOARD SHIP.*

Everybody is familiar with the great advance in comfort on board ship following the substitution of electric lights for candles and oil lights, and it is only natural that ever since the first application of electricity, endeavors should have been made to extend its use on board ship. The first part of the electric system to be developed was the generating plant, as it was very soon apparent that belt driving, otherwise universally resorted to, was not reliable enough. The motion of the ship affects the working of the belts, and often causes the same to leave the pulleys. As a first improvement, Mr. J. S. Raworth constructed rope pulleys for an endless rope, which could be stretched while running by means of a movable guide pulley. This rope gear, although it avoided the danger due to the belt slipping off the pulleys, shared with the belt driving the serious disadvantage of occupying too much space, which, considering the limited accommodation in ship engine rooms, was a fatal objection. About the same time, Brotherhood engines, running at a high speed, were first used coupled direct to dynamos, but their construction at that time was not very well understood, and the ships' engineers greatly preferred double acting engines of simple construction. To meet their views and to economize space, Mr. Raworth constructed a friction driving gear, which has been extensively used, and merits therefore a short description. The dynamo is bolted to a cradle, which can rock the dynamo about an axis at right angles to the direction of the armature spindle, and this carries a pulley of compressed paper, which is driven by the fly-wheel of the steam engine, against which it is pressed by adjustable springs. The cradle supporting the dynamo is placed between the steam engine and the fly-wheel, so that the whole arrangement is very compact. After this gear had been in use for some time, Mr. Charles Hall, the electrical engineer of the P. & O. Co., suggested driving the dynamo direct by a Tangye engine at the comparatively low speed of 180 to 200 revolutions per minute. This type of generating plant has practically been adopted for all modern ships, and it may be observed in passing that direct driving is nowadays recognized, even in places where there is no want of space, as superior to belt driving for all purposes.

In view of the contention that English practice is lagging behind that of other countries, it is as well to remember that at the Chicago Exhibition the two or three direct-driven sets were almost ridiculed by the American engineers, who confidently predicted that the old country would soon drop this practice and adopt the American method of belt driving. As a plant typical of the American practice of that time, the power plant of the Brooklyn tramways can be mentioned, where Corliss compound engines drove a fly-wheel from which a belt 5 feet wide drives two dynamos on the first floor of the building. It is needless to say that direct driving is now as much in use in the United States as it is here, and, in fact, everywhere. There can, therefore, be little doubt that the type of generating plant adopted on board ship has reached a stage in its development which, no doubt, will be improved, but will not be materially altered.

When electricity was introduced upon Her Majesty's ships, some inconvenience was caused by the magnetic field of the dynamos, affecting the ship's compasses in cases where iron bulkheads happened to be near the dynamos, and extended to the neighborhood of the compasses. In order to guard against eventualities of that kind, it is now usual to employ ironclad dynamos on the men-of-war. For the same purpose the distribution of the electricity is in most cases effected by the double wire system, the flow and return wires being laid side by side to all points of utilization. These conductors form the most valuable part of the electric system, through being easily adapted to the scanty accommodation on board, readily repaired without danger arising from their being damaged when they are properly fitted up, and easily tested to ascertain that they are in working condition. Such qualities contributed not a little to the speedy introduction of the electric light, but they are still more appreciated for the distribution of power. The larger the ships are, the more it becomes necessary to supplement manual labor by mechanical power, and it is a trite saying that modern ships are nothing but machine shops. Until lately it was usual to drive all this auxiliary machinery by small steam engines, or by hydraulic power, and this necessitated a network of piping all over the ship, which is difficult to arrange neatly, and which gives endless trouble through leakage. In addition, there are waste products from all the auxiliary steam engines, and their disposal re-

quires additional pipes and complications. All this inconvenience is avoided by employing electric motors, and for certain purposes, where the load on the motor does not vary much, they have been generally introduced. That their use has not been more extended is due to the difficulties which arise from variations in the load on the auxiliary machinery. Taking the case of a winch used to warp a ship, it frequently happens that the strain on a cable increases sufficiently to stop the movement of the winch altogether, and this would cause the current through the electric motor to rise to a dangerous extent. It is impracticable to protect the motor by a fuse, as the interruption of the circuit through the blowing of the fuses would allow the strain being taken off the winch, and in most nautical operations it is necessary to keep the strain on. There are two methods in use to overcome this difficulty—one is to employ shunt-wound motors, running continuously, and operating the winches, etc., through friction clutches; and the second is to employ special cut-outs in connection with series-wound motors. By these cut-outs the current through the motors is not interrupted altogether, but if the winch or other machinery is stopped so that the current becomes excessive, the main circuit is interrupted and a by-pass only left, in which sufficient resistance is inserted to allow only the maximum safe current to pass.

As an example of the first method, a steering gear and rudder indicator may be mentioned, which are constructed on similar lines, the indicator being, so to speak, a working model of the steering gear. A shunt-wound electric motor replaces the usual steam engine and turns the main shaft of the steering gear backward or forward by means of clutches, which are actuated by currents sent from the bridge. The current through the magnets actuating the clutches is interrupted automatically by the movement of the rudder head, and a new impulse is wanted from the bridge before the steering gear will move again. For the convenience of the quarter-master, the contact-making apparatus on the bridge is designed in the usual shape of a small steering wheel, so that it does not differ externally from the wheel used with steam-steering apparatus. On the rudder head a similar contact apparatus is fixed, which controls the solenoid clutches of the rudder indicator on the bridge, which is, as stated above, a working model of the steering gear, and shows the quartermaster the exact position of the rudder head. Such an indicator has been in use on the screw steamer Faraday for some time, and has given complete satisfaction, so that it is contemplated to substitute the corresponding electric steering gear for present steam steering gear as soon as room can be found for larger generating plant. Here, again, appears an obstacle to the introduction of electric motors on board, and it can only be overcome by designing the engine room for the accommodation of powerful electric generating plant. There is every indication that this requirement is now being fully recognized, and that in future it will be possible to utilize electric motors in connection with all auxiliary machinery, and the absence of all pipework outside the engine room and boiler space will greatly increase the safety and convenience of working ships.

Sometimes it has been suggested that the main engines of a trans-Atlantic liner should also be worked by electricity, either on the plan adopted by Mr. Heilmann for locomotives or by means of accumulators. Although this may seem feasible at first sight, our present knowledge is not sufficiently advanced to make a practical test of either suggestion. Marine engines are the lightest per horse-power that are constructed. It would, therefore, not be possible to put smaller engines on board to generate electricity than those now used to drive propellers direct. It is, therefore, self-evident, that the Heilmann system cannot be economically applied for the main engines of ships. Equally impossible would it be to use accumulators for driving electric motors connected to the propeller shafts, as their weight would greatly exceed the capacity of the ship. This is easily shown by the consideration that a 6,000-ton ship propelled by 8,000 i. h. p. will take about 150 hours to cross the ocean, equal to 1,200,000 h. p.-hours. Fairly efficient accumulators give about 10 watt-hours per pound of their weight, so that a h. p.-hour can be obtained for 75 lbs. of accumulators. The ship in question would, therefore, have to load about 40,000 tons of accumulators for the trip across the Atlantic. No doubt there are further discoveries in store which will enable future electricians to attack the problem of propelling large ships electrically for long distances; for the present, it has only been proved to be an advantage to drive electrically the auxiliary machinery on board ship.

PROSPERITY IN THE UNITED STATES.

It is an old story to say that prosperity prevails throughout the country, and yet every week develops a new feature that sets out the fact in new light. The bank clearings for October were greater than ever before known in any month. The aggregate clearings of seventy-six cities for the month, as reported by Bradstreets, were \$8,270,365,635, a gain of 18 per cent. over those of September, and heavier than those of October a year ago by 40.6 per cent., 47.6 per cent. larger than those of October, 1897; 94 per cent. in excess of those of October, 1894, and 51 per cent. heavier than those of October, 1892. Bradstreets, were \$8,270,365,635, a gain of 19 per cent. over September, but a decrease from those of January, March, April and May. But outside of New York, the clearings in October exceeded those of September by 15 per cent. and actually exceeded those of March, the heaviest total heretofore reported, by over 7 per cent. For the ten months of the year the clearings in the seventy-six cities aggregate \$77,333,821,921, a gain of 41 per cent. over last year of 68.6 per cent. over those of 1897, a total more than double those of 1894.

It is not easy to comprehend a trade that in ten months reaches seventy-seven billions! A country that has that amount of business behind it cannot be otherwise than prosperous. The people must be employed to roll up figures like these.

The iron business affords the best illustration of the business pressure that exists. The railroads are controlled by men who are in touch with the situation, and they can be depended on not to do anything foolish. The Federal Steel Co. has recently advanced the price of rails, but this advance has not interfered with business in the least, for in the last three weeks 500,000 tons of rails have been sold at this advance, about one-fifth of next year's output. Of this amount, the Pennsylvania system took 105,000 tons, the Illinois Central 50,000 tons, the Northwestern, the Union Pacific, the St. Paul, the Baltimore and Ohio and the New York Central, 40,000 tons each. When companies like these invest heavily in rails at the top of the advance it is because the future has been well considered, and the railroad managers of the country have deemed this the opportune time to practically rebuild their lines. Grades are being changed and new rails laid all over the country. The leading railroads of the country have placed orders within a few weeks for \$16,000,000 of new rails.

The public has no real conception of the amount of business being done. The railroads do not expect a break in the price of rails for a long time to come. The New York Central road has increased its capital stock \$15,000,000 for equipment and betterment, an item that may suggest the tremendous pressure of business. President Calloway, of the New York Central, says the railroad business of the country is assured for at least three years to come.

Important changes in banking methods are in prospect. A late rumor has it that three of the largest banks in New York will consolidate. The tendency seems to be in this direction. The feeling is growing that larger and stronger banks are necessary to properly care for the growing interests centered in New York as the country's financial center. It is not unlikely that a great central bank may eventually grow out of the present tendency to combine kindred interests. The best financial observers see in this movement an advance step in the line with the best interests of the public. —Baltimore Journal of Commerce.

FUELING AT SEA.

The Navy Department has directed that the collier *Marcellus* and U. S. S. *Massachusetts* be fitted with the conveyor for coaling vessels at sea designed by the Lidgerwood Mfg. Co., so that a trial of the device can be made outside Sandy Hook. The *Marcellus* has already been equipped, and tests made with the vessel docked at the Brooklyn Navy Yard have shown, as far as conditions would admit, the entire practicability of the apparatus. The trials at sea will be made within a week or so, and it is expected will last several days, during which the capacity and limitations of the device will be thoroughly tested.

The quick and safe coaling of vessels at sea has troubled the nations of the globe and occupied the attention of experts on the subject for years, and the result of the test will be awaited with unusual interest. If the conveyor proves able to do what the manufacturers and their friends confidently expect it will, the Lidgerwood Manufacturing Co. are to be congratulated on the solution of a problem of vast importance not only to the navy of the United States, but those of the entire world.

*A Paper by Mr. Alexander Siemens, M. I. C. E.; read before the Mechanical Section of the British Association, on September 20th.

AN ISTHMIAN CANAL.

A strong unanimity of opinion in favor of an Isthmian canal was shown in the International Commercial Congress when the subject was under discussion in that body. The only point on which the speakers differed related to the route as regarded most favorable for that proposed great waterway. It was made clear that the cost of construction is insignificant when the advantages to commerce that would accrue are considered. Dr. Juan J. Ulloa, Consul-General of Costa Rica, who favors the Nicaragua route, presented strong argument in support of the project. He said:

"There is no such word as 'impossible' in the dictionary of American enterprise, hence I cannot understand the delay of the muscular Uncle Sam in cutting through the narrow strip of land which is the only barrier which prevents him from sailing across the continent. It seems unnatural, not to say ridiculous, that such a trifle as a few yards of land should compel the giant of commerce to go around Cape Horn.

"The canal must be dug by the government of the United States in preference to private enterprise, because it will better serve commerce and the general public thus. One hundred and twenty-five million dollars, taken by yearly installments, will not make Uncle Sam feel much poorer, and will undoubtedly be his most profitable investment, because he will succeed in cutting down greatly the transportation and freight rates, and will open to his countrymen the best markets in Central and South America and the east."

The strongest reasons advanced in favor of the Panama route, were those of J. W. Humphries, of Colon, and H. A. Guder, United States Consul at Panama. The latter said:

"That miles of the Panama canal have been well built no one can gainsay. It is estimated that one-third the entire work has been completed. The old canal company has gone into liquidation, and a new and strong company has been organized, which is composed of men of the highest probity.

"At each end of the canal there is a good natural harbor, large enough for all purposes, while at any other ocean terminus of a canal harbors must be provided at a cost of millions of dollars, and a further maintenance cost of many more millions. In the construction of any canal a railroad is necessary, and the Panama railroad, already built and in operation, could be used to complete the Panama canal at small cost as compared with a canal on any other route."

As to the control of the canal, he said the Congressional records would show that the United States can have complete control, and he believed the time to be ripe for the purchase of a controlling interest in the concession. He believed the Republic of Columbia would hail with pleasure the ownership of the work by the United States.

EXPENSES OF YACHT RACING.

To the men immediately interested, international yacht racing is the costliest sport in the world. The bill for the yachts themselves, for building, alterations and repairs, will amount to fully \$250,000 for each; Sir Thomas Lipton says the Shamrock cost him \$500,000; the expenses of racing them cost their respective owners easily \$250,000 more. Here is a cool million just for building and racing the boats. The sails alone cost as much as an ordinary sailing yacht. The Columbia's sails are said to have cost \$8,000, and the Shamrock's even more, for hers were woven to order from Egyptain and Sea Island cotton mixed with silk.

The expense of maintaining the crew was, or rather is, enormous, for the boats are not yet out of commission. It is said that the skipper of the Columbia receives \$2,000 for his services, and the following expenses may be added: The salary of the mate is \$100 a month; the second mate, \$40; the four quartermasters, \$35 a month each, and the thirty-two members of the crew each \$30 a month. Food for the crew costs easily \$600 a month; each tender accompanying the yachts costs \$4,000 for the few weeks of the season; and dockage and tonnage cost about \$8,000 more for each yacht. Estimates of the total cost of the Shamrock have been placed all the way from \$150,000 to \$450,000.

Probably Sir Thomas Lipton himself does not know exactly what his little sport has cost him; there are doubtless stacks of bills yet to be presented—such bills as \$16,000 for the charter of four tenders, and \$5,400 wages for twenty extra sail makers for three months. Besides all this Sir Thomas paid \$275,000 for his steam yacht, the Erin; \$100,000 more in fitting her out, and another \$100,000 in entertaining guests during his visit. The most impressive feature about this array of costs is that the yachts upon which so much has been spent are useless after the races. The Columbia,

for instance, can race no more, for there will probably be no yacht fit to meet her, and for cruising she would be a failure. In a year or two her delicate hull will be worth only the metal of which it is made.

WEALTH OF THE GREAT LAKES.

The Great Lakes have become the great artery of our richest commercial blood, says Ainslee's Magazine. One-third of the population of the United States is dependent on these lakes for their export and import trade. This waterway taps the richest and most prosperous agricultural territory on this continent of ours, together with our most productive mines, and it is worth while noting that within a radius of 400 miles of Cleveland lies one-half the population of the United States. It is a well established fact that deep water transportation is, and necessarily must be, far below the cost of transportation by rail; indeed, it is computed that the cost of water transportation by steam, when the voyage is of any considerable length, is about one-quarter the average cost of transportation by rail, while by sailboat it is only one-eighth of the latter. As this question of transportation determines to a great extent the existence or the non-existence of a possible industry, and enhances or diminishes the value of every article of export in proportion to its efficiency and economy, the battlecry of the West for "20 feet of water between Duluth and the sea" is no great problem to account for.

DULUTH OR CHICAGO TO LIVERPOOL.

The Chicago Times Herald says: Direct transportation by water from Chicago to Montreal and possibly to Liverpool, for both passenger and freight traffic, is said to be established by a new transportation line that has already been incorporated. The nature of this corporation which will introduce this innovation on the Great Lakes is the Illinois Transit Co. of Chicago, and the capital stock is placed at \$50,000. The company is headed by some of the best known marine men on the lakes, and, although it was incorporated for a comparatively small amount, it is said there is unlimited capital back of it, which will enable the new line to compete with the largest ship owners on the lakes. The incorporators are: James J. Rardon, of J. J. Rardon & Co., vessel agents; James H. Channon, of H. Channon & Co., and W. C. Richardson.

This change in the means of transportation to the Atlantic by way of Canada has been brought about by the enlarging of the St. Lawrence system of canals, which was completed late this fall. The canals as they are now, will be navigable for most of the large boats that ply on the lakes, and this will make it possible for boats to run direct from Chicago to European ports.

This may seem a good deal like a dream at this time, but, for that matter, so would a fourteen foot waterway to the coast have appeared an impossibility to the average vesselman only a few years ago.

VISIBLE SUPPLY OF GRAIN

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo.....	1,049,000	630,000	492,000	148,000	559,000
Chicago.....	13,067,000	2,810,000	1,205,000	454,000	61,000
Detroit.....	816,000	118,000	1,000	8,000	14,000
Duluth.....	7,987,000	63,000	175,000	288,000	632,000
Fort William, Ont..	1,495,000	.....	.....	.....	.....
Milwaukee.....	165,000	2,000	2,000	3,000	11,000
Port Arthur, Ont....	82,000	.....	.....	.....	.....
Toledo.....	2,101,000	973,000	590,000	10,000	20,000
Toronto.....	35,000	.....	5,000	.....	38,000
On Canal.....	278,000	301,000	57,000	26,000	320,000
On Lakes.....	1,151,000	984,000	449,000	.....	417,000
Grand Total.....	52,562,000	11,909,000	6,706,000	1,251,000	2,641,000
Corresponding Date, 1898.....	19,194,000	23,529,000	5,499,000	1,017,000	3,341,000
Increase.....	1,561,000	.....	.....	124,000	.....
Decrease.....	.....	923,000	257,000	.....	717,000

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

THE United States cruiser Newark, on a voyage to Manila, arrived in Honolulu on October 25, having covered the 2200 miles between San Francisco and that point in 7 days and 2 hours, or an average speed of 13 knots an hour. This speed is considered remarkable, as the run was made under somewhat adverse conditions, the vessel being overloaded with 300 tons of fresh water and about 200 tons of extra ammunition.

NOTES.

THERE is positively no waste circulation to the real trade paper. Its influence is direct. It goes directly from the maker of things to the distributor or seller of things, and every copy of it reaches a man already interested, and not one who may be made to be interested. The value of all advertising, and particularly that of trade paper advertising, must be reckoned by the character and reputation of the advertising medium, as well as by the circulation of it.—N. C. Fowler.

THE Canton Marine Insurance Co., through their agents, Messrs. Matheson & Co., announce a dividend for 1898 of \$11 per share, equal to 22 per cent. on the paid up capital. The reserve fund of the company now amounts to \$1,150,000, and yet underwriters are continually losing money on their business. Should any other commercial or mercantile industry earn a similar per centage, it would be considered as a lucrative investment, whether in the United States, Britain, China or Japan, or in fact universally placed.

At a convention of the Mississippi Valley Association, held at Peoria, Ill., on the 8th inst., a special committee, headed by Lyman E. Cooley, C. E., was appointed to seek aid from Congress for the construction of a deep waterway through the state of Illinois by means of a continuation of the Chicago drainage canal from Lockport to the mouth of the Illinois river. This committee has been instructed to attempt to secure the appointment of a board of United States Army and civilian engineers to make surveys and investigations of the work along the proposed route. According to official calculations a depth of 14 feet of water can be secured between the end of the sanitary canal, at Lockport, and the mouth of the Illinois river, for an expenditure of \$15,000,000.

THE Illinois flag law, which prohibits the use of the American flag, or representations of it, for advertising purposes, has been declared unconstitutional by Judge Gibbons on the ground that the informer's fee clause in the flag act is against the spirit of American law. The vital principle of the law itself was not touched upon. It is probable, and much to be hoped, that the law will be amended so as to be constitutional. The Army and Navy Journal says: "We would call the attention of the New York law makers to the practice of using the flag to drape the victor in prize fights, a spectacle that has disgusted even the not over sensitive spectators at some of these exhibitions." There certainly ought to be more respect shown, if not reverence, for the emblem of the country. The stars and stripes should not be degraded for advertising purposes.

At Taunton, last week, the electric lighting committee presented a report from the consulting engineers advising certain further improvements and extensions in connection with the electric supply works, and asked the council for sanction to obtain tenders for the plant required. The chief opposition to the adoption of the committee's recommendations was a certain Mr. Standfast, who read an extract from Tid Bits, stating that "liquid air would supersede boilers and engines, and that coal, wood and water would be required no longer. Factories would be worked by liquid air which would be drawn from a source that was inexhaustible." From this he argued there was a possibility of the new boilers and condensers not being required for the Taunton electricity works, and it is well to pause before laying out money on them. "It is a pity," he said, "that men's minds are so shallow." It is.—The Electrician, London.

CONSUL HEENAN, at Odessa, reports on a curious device to prevent rats carrying contagious diseases into ships. The cable of the ship was run through a piece of iron pipe about a foot in length, and welded on the end of the pipe was a flange or funnel, which looked like the end of a trumpet, with the wide end facing the ship. The iron pipe was stuffed with oakum to prevent it from slipping, and also to prevent rats from passing through it. This novel construction was quite close to the ship. The Russian authorities furnish these appliances, and oblige all ships to use them whenever they come from a port infected with the plague, in order to prevent the rats on the ship from coming on shore. It is generally conceded that the plague has been carried and spread by rats which have left ships coming from infected parts. It is known that rats make use of the cable to come on shore, and this iron pipe with its funnel-shaped arrangement was employed to prevent such visits, if possible. These devices are attached to each cable by which the ship is moored. In addition to this precaution the master of the ship is obliged to take down his loading stages every night and erect them again the following morning, in order to prevent the rats coming on shore.



ESTABLISHED 1878.

Published Every Thursday by

THE MARINE RECORD PUBLISHING CO.,

Incorporated.

C. E. RUSKIN, - - - - - Manager.
CAPT. JOHN SWAINSON, - - - - - Editor.

CLEVELAND, - - - - - CHICAGO,
Western Reserve Building. Royal Insurance Building.

SUBSCRIPTION.

One Copy, one year, postage paid, - - - \$2.00
One Copy, one year, to foreign countries, - - - \$3.00
Invariably in advance.

ADVERTISING.

Rates given on application.

All communications should be addressed to the Cleveland office.

THE MARINE RECORD PUBLISHING CO.,

Western Reserve Building, Cleveland, O.

Entered at Cleveland Postoffice as second-class mail matter.

CLEVELAND, O., NOVEMBER 16, 1899.

THE U. S. S. Charleston has piled up on a reef off the coast of Luzon, Philippine Islands. Merchant vessels also slip ashore sometimes and it is generally found out how they landed. Now, let the country clearly understand why this supposed to be immaculate and infallible craft, navigated by the talent of the United States, manned by the flower of our navy, should go poking around where she had no right to be. The loss of a couple of million dollars don't cinch us a trifle, but, we would all like to know why it was thrown away.

THERE is more reason than ever for the formation of a national naval reserve. The RECORD has argued, reasoned for and printed columns upon columns on this particular subject in the past and we still adhere to our preconceived ideas relative to the proper establishment of this auxiliary to the naval element of the national defense or offence. We are pleased to see that Assistant Secretary Allen, in his annual report to the Secretary of the Navy, endorses a plan for a national naval reserve. It is well known that those already in existence are state organizations, like the National Guard. Secretary Allen believes that the reserves should be enrolled for four years, and that reserve officers should be given equal opportunity for promotion with the regular naval officers in time of war. There has been much trouble of late getting recruits for our navy, and this emphasizes the importance of establishing a volunteer force to fall back upon, so that we come back to the old proposition of making naval reserve forces a national arm of the naval service instead of a state organization as at present.

THERE seems to have been some misapprehension of our note last week relative to converting tow barges into steamers. We said that the conversion of old steamers into sailing ships, tow barges, store-ships or lighters has been common enough during the past few decades, but it is a rather unusual occurrence to convert tow barges into steamers and the experience may prove anything but a satisfactory one in the long run. It was furthermore stated, that it was only a question of financial outlay in making any possible change. As an editorial note, this was not in connection with the recent change of plans of the Bessemer Steamship Co., who recently ordered two tow barges to be built as steamers while still on the stocks, and so we said, that in the most recent instance, the tow barges were only under construction as yet, so that would simply mean a revision of the plans, new stern posts, extra strengthening, etc., but the conversion of tow barges into steamers is, on general principles, a good deal like taking a step backward, a forward retrogression, as it were. Looking back over our experience, converted abortions never amounted to anything satisfactory, this, as a general rule, but, we cleared our skirts in saying that these craft were still on the stocks and that only the plans would be changed.

THE METEORIC DISPLAY.

Lake seamen have an unusually good chance to notice celestial phenomena and it is rather a pity that so few are endowed with the intelligence to notice what is going on over their heads and around them.

In the issue of November 2nd we said through our estimable Toledo correspondent, D. Satterthwaite.

The most important astronomical event during the month will be the meteoric display of November 13-17. It is expected that the maximum display will take place on the morning of the fifteenth, as the earth will pass through the densest portion of the meteoric stream at that time. Only once in 33 years does this occur. The last display was in 1866, and was witnessed on the eastern continent, but was invisible in the United States. The motion of the meteoroids in their orbit is the opposite in direction to that of the earth, so that the earth meet them. Thence in order to see them to best advantage we must be at the front. So the most favorable time for witnessing the display will be from midnight till dawn. As the earth is several days in passing through the meteoric stream there will probably be minor displays on two or more mornings before and after the fifteenth. The presence of the moon, nearly full, will not be favorable for the display, and the prevalence of clouds in November is another discouraging feature. Notwithstanding these unfavorable circumstances the display will, doubtless, be awaited with great interest in every civilized country of the globe."

On the same date, as announced from the observatory at Washburn, Wis., it was stated that: "The Leonid meteors will be due again in force this month. For several years past a considerable number of them have been seen each November, but this year they may be expected to make a more numerous appearance. They start apparently from the Sickle in the constellation Leo, which is high in the eastern heavens in the early morning. These meteors are very swift in their flight, and differ greatly in brilliancy. The morning of Nov. 14 and 15 will be the most favorable times for seeing them, if the sky is clear."

Aside from the foregoing, which is authentic, practical and skillful, also professional, there is reliance to be placed on the November meteors, for in 1799 and again in 1833 the showers were wonderful, and the annual display is now looked for with interest as well as certainty. The meteor stream, known as the Leonids, says Mary Proctor, in the New York Herald, dates back as far as 902, when "an immense number of falling stars were seen to spread themselves over the face of the sky like rain." The shower of November 13, 1833, was well observed at Boston. The shower lasted seven hours and it was estimated that 240,000 meteors were visible. The people of the whole of the eastern coast of North America, from the Gulf of Mexico to Halifax, N. S., were treated to a grand display, as more than 20 meteors could be seen at a time shooting in every direction, some of them as bright as Sirius. In some places they were seen to fall as thickly as snow flakes in a storm.

At this time a grand display is expected, because it is the time for the earth to pass through a richly clustering part of the meteoric stream. This will not occur again for 33 years, and the rarity as well as the grandeur of the spectacle enhances its interest. Astronomers are greatly interested and they expect that the meteoric army will put in an appearance within a day or two of the 14th or 15th, but the predicted time for the maximum display is from midnight until dawn on the morning of the 16th. If the clouds do not curtain the sky the scene should be one of the greatest interest to those sailing on the lakes as well as the scientists.

It is somewhat regrettable that so few men who are employed on the lakes, take so little interest in what is going on above their heads. The direction in which they are proceeding, apparent time, hence, mean time, and almost their rate of progress may be ascertained by a common, superficial or slightly practical knowledge of the movements of the celestial objects, and at this date, it is simply incomprehensible why the more advanced and educated men in the lake trade will not notice, what is so clearly told them by the marks and mile-stones in the heavens. In this connection we would not insist upon lake seamen undertaking to work lunars, or using the sextant to any extent, except under the most favorable conditions; at the same time, it is simply ridiculous that flagrant ignorance should exist among those innocently entrusted with floating property frequently averaging thousands and thousands of dollars worth, when their information, knowledge or education is not above that of a dock-walloper or ordinary laborer.

There are at the present time a large number of masters and pilots on the lakes, (after considerable and due coaching,) keeping an abstract log for the Weather Bureau, Department of Agriculture, also for the Hydrographic Office,

U. S. N., and we look for most important information through this channel relative to the meteoric display, as observed "out in the clear," mid-lake, and away from all the smoke and artificial, structural as well as other conditions on shore. Should this information not be rendered by the best talent now engaged in lake sailing, we will be fairly impressed with the idea that our marine, sailing, or practical community has advanced but little during the past decade. The result being otherwise, our predilections will have been satisfied.

In this connection, owners and underwriters should endeavor to assist those who show a willingness and adaptability to acquire the best and most advanced practice of safe navigation and pilotage in preference to those who work by the rule of "by hit or by miss," and in doing so shape and steer a course, by any old compass, without knowing where it will land them in thick weather. In clear weather it is hardly necessary to shape a course if the only object is to keep off the beach. Not unfrequently it is clear overhead when quite a mist or fog is hanging over the surface of the water, and the man who at night time can recognize the path he is pursuing is certainly a more valuable employee to the vessel owner and a better risk to place a line on for the underwriter than the plough boy who may trust implicitly to the magnetic direction indicated by a couple of be-deviled magnets placed under a paper dial.

THE sinking of the steamer Houghton in the narrow channel near Sailors' Encampment a few weeks ago stopped all traffic between Lake Superior and the lower lakes. This blocking of all the "Soo" communication has started a movement for a new channel which will prevent any such disaster in future. A new channel can be made in the St. Mary's river, at this point, at comparatively small expense. The matter will be presented to Congress at the coming session, and action should be promptly had. It is a matter which affects the entire commerce from the head of Lake Superior to the seaboard, and is one of those things which are all the better for being done quickly. Similar action is also urgently required at one or two other points, notably, the St. Clair Flats canal. In any case, and so far as the "Soo" river is concerned, the question of a second channel is larger than any individual interests; it affects matters of national concern from the northwest to the seaboard, and if properly presented to Congress must result in the removal of this menace to the vast transportation business, on which so much of the prosperity of the country depends. With our constantly expanding exports and our industrial victories in all parts of the world, the waterways of the Great Lakes have much to do, and they cannot be too jealously conserved for the benefit of the whole people.

"THE direct waterway-to-Liverpool" business seems to be solving itself. Recently a special dispatch published in the Evening Telegram, West Superior, Wis., reported the formation of a company for the purpose of shipping direct from Chicago to Liverpool via the Welland canal. It is a good idea to give a practical example of how the deep-waterways canal would work and we hope that the Chicago enterprise will be a success from the start. There seems to be no reason why it should not.

MAINTAIN LAKE LEVELS.

(Editorial Cleveland Plain Dealer.)

Prof. Henry's lecture before the National Geographic Society at Washington will send cold chills down Chicago backs. The professor was discussing the subject of lake levels and, after pointing out the enormous value to the country of the improvements made in the lake channels by the general government, he said there is serious danger threatened to the level of some of the lakes by the construction of the Chicago drainage canal and of the hydraulic power canal at Sault Ste. Marie.

This is an indication that unless the water is turned into the canal in advance of the meeting of Congress there will be an investigation before the gates can be opened, and that expert testimony will be divided on the subject of the effect of that opening. The canal engineers pooh-pooh the idea of the lake level being affected more than an inch or two, if at all, but other engineers and experts entitled to respectful hearing have a different opinion.

There are not many days in which to overcome the physical and legal obstacles to the opening of the big ditch before the expiration of Secretary Alger's permit, on which everything depends until December 1, and Chicago may say "I will!" very loud and persistently now, for after that date it may have to whisper plaintively "I can't!"

LAKE FREIGHTS.

Iron ore freights continued lowering until the quotation for the past few days stood at \$1 from the head of the lakes and 80 cents Escanaba, nor are present indications such as to look for any higher figures during the balance of the ore shipping season, steam is already being used to keep the ore from freezing in the pockets.

Grain rates slumped away down until 2 cents on corn is the best offered from Chicago, and the railroad lines competing from Duluth at 2½ cents on wheat to Buffalo. Duluth grain shippers are in the market for boats to hold grain at Buffalo, but the rate is much lower than the figure at which the first charters of that kind were made at. A number of vessels were placed for freight and storage at Buffalo at 5½ cents, but now the best figure offered is 3¾ cents and some shippers are trying to get boats at 3½ cents. The Duluth-Buffalo rate was 6 cents early in September, and this week 2½ cents.

Contrary to all expectations at this part of the season coal rates lowered, charters are being placed from all Lake Erie ports at 75 cents, Chicago or Milwaukee, 50 cents to the head of the lakes.

Lumber is fairly active at \$4 per M. feet from Lake Superior with shippers doing their best to get tonnage at 50 cents less. A vessel owner in the lumber trade stated that he was confident that not less than \$4.50 had been accepted by any craft from the head of Lake Superior to Lake Erie ports this fall, despite reports that the rate had been cut a dollar less per thousand than this figure.

THE "SOO" WATER POWER CANAL.

A special from Washington states that a suggestion has been made to the War Department as to the best method of solving the difficulties growing out of the peculiar conditions surrounding the water power canal project at Sault Ste. Marie. Powerful influences are at work to prevent the government from putting a stop to the project on the ground that it will lower the level of the lakes, but, at the same time, the department is being urged to secure positive guarantees that no harm will be done navigation interests before the water is turned into the canal. A Michigan man thoroughly informed as to the situation said today:

"I think the outcome of this controversy will be an agreement between the War Department and the projectors of the canal, whereby full guarantees will be given that proper remedial works shall be constructed whenever necessary to prevent the lowering of the lake levels. While it is true that this government cannot control any such works erected in the stream on the Canadian side of the river, yet the War Department will always have in its power to see to it that the navigation interests are not jeopardized, for it can at any time close the gates into the canal, thus shutting off the water supply and restoring the conditions which existed before the project was undertaken. This fact will compel the canal men to see to it that all pledges made are to be carried out to the letter.

"It should not be forgotten that some of the men most heavily interested in the "Soo" canal project are residents of Canada and have great influence with the Canadian government. They will be able to furnish all the pledges that may be needed as to the erection and maintenance of remedial works and the co-operation of Canada with the United States in all important matters affecting the canal."

SHIP BUILDING CONSOLIDATION DENIED.

Reports have been telegraphed over the country during the week of a plan to buy the largest shipbuilding plants of the country and combine them in a single company for controlling the building of war ships. The concerns named are; William Cramp & Sons Ship and Engine Building Co., of Philadelphia; the Newport News Ship Building & Dry Dock Co., Union Iron Works of San Francisco; the Columbian Iron Works, of Baltimore; the Bath (Me.) Iron Works. The firm of J. & W. Seligman & Co. was said to be conducting the financial part of the deal and Henry Seligman was quoted as authority for the statement that negotiations were in progress. Representatives of the Philadelphia, Bath and San Francisco companies have made denials of the story, averring that the printed reports were their first information on the subject.

The American Tube Co. has been incorporated at Chicago with a capital stock of \$25,000 for manufacturing tubes, pipes and tubing. The incorporators are F. W. Adams, J. M. Adams and James G. Congdon.

THE PITTSBURG STEAMSHIP COMPANY.

A West Virginia charter has been granted to the Pittsburgh Steamship Co., with a capital stock at the start of \$5,000. Privilege is given of increasing this to \$5,000,000. The personnel of the company will be practically identical with that of the Oliver Iron Mining Co., five-sixths of which is owned by the Carnegie Steel Co., and it will own and operate all the lake vessels of the Carnegie interests. The Oliver Iron Mining Co. now owns six lake vessels, acquired from the Lake Superior Iron Co., which will be transferred to the new company, and has contracts placed quite recently for six more. The statement that a shipyard will be built by the new corporation is denied. The present purpose of the company is the management and ownership of the vessels carrying Carnegie-Oliver ore, and the Carnegie and Olliver interests, as in the related ore company, will be in the ratio of five to one. The management of the fleet will be in Cleveland.

THAT STEAM BELT LINE.

It has been widely heralded that J. J. Hill intended to span the Atlantic, this continent and the Pacific, and the general public, especially transportation and conveying circles naturally admitted that Mr. Hill would do so. Now comes along a special from St. Paul to the effect that President Hill, of the Great Northern railroad, denies the story that he is interested in a proposition to establish a steamship and rail line from London to Hong Kong in these words:

"I have," he said, "as much idea of constructing a new line of transportation to the planet Mars as I have in arranging for a steamship and rail line from London to Hong Kong. What would be the use of it? To-day the Atlantic is filled with ships of all descriptions—it is, in fact, a veritable steam ferry, and the lines now running can, for the present, handle all the business that is offered them."

OUTLOOK FOR THE CANAL.

At the meeting of the drainage board engineering committee, Monday afternoon, the trustees discussed the prospects of finishing the great canal ready for the water by December 1, and agreed as a result of their personal observations on the canal last Saturday that the outlook is more encouraging than at any time recently. Assurances have been received from all the contractors that their sections will be completed as agreed on time and nothing but bad weather, it is thought, will interfere with the accomplishment of the end for which the trustees have been striving during the past two years, since the time for opening the canal was fixed at this fall.

Trustee Frank Wenter announced Monday that he will represent the sanitary district at the Mississippi Valley deep-water convention, to be held at Memphis, Tuesday and Wednesday. Lyman E. Cooley left for Memphis, Sunday night.

Attorney Charles C. Gilbert, of the sanitary district, Monday, filed in Judge Kohlsaat's court the answer to the allegations made in the bill for injunction brought by the Illinois and Michigan canal commissioners to restrain the drainage board from opening the drainage canal until provision is made for maintaining the summit level of the old canal.

The claim made in the bill that the Chicago river will be so greatly lowered below its present level at Bridgeport, where the old canal obtains its supply of water, that it will be impossible to feed the old canal as it is now done, is met by the statement that the level will not be materially impaired. It is also claimed for the sanitary district that the original sanitary act in permitting the district to use the old canal, its water, channel and right of way in Cook county, is sufficiently broad to protect the sanitary district in the present case.

JUDGING from meteoric bodies that have been seen to fall upon the earth's surface and of which many have been found and chemically analyzed, some of these bodies are composed of known metals, such as iron and metals of the iron group, nickel, etc. This class is called "meteorites." Others are composed mainly of silica, which is the basis of common sand and quartz. The bodies of this class, therefore, are stony and called "aerolites." All these bodies when out in space, far from the earth, where the temperature is the lowest possible—being 461 degrees below zero, Fahrenheit, are exceedingly cold, and therefore dark bodies, and that when near the earth they appear as luminous bodies is due to a physical cause.

PNEUMATIC TOOL LITIGATION.

The Chicago Pneumatic Tool Co., manufacturers of the well known Boyer pneumatic tools, scored an important victory last week in its patent litigation with the American Pneumatic Tool Co., of New York. Between three and four years ago the American company brought suit at New Haven, Conn., against a concern which was using one of the Boyer tools, and succeeded in obtaining a preliminary injunction on the strength of an old decision it had obtained sustaining its patent in a prior suit which had not been strongly defended. Upon obtaining this preliminary injunction the American company sent every concern using Boyer tools a notice of infringement, in which it claimed some two millions of dollars damages against the users of Boyer tools. The Boyer people promptly took an appeal from the preliminary injunction order, and the order was reversed by the Court of Appeals at New York City. This was about three years ago, since which time the suit has been progressing toward a final hearing on its merits. It was argued at great length before Judge Townsend, in the United States Court at New Haven, last June, and has been held under advisement by the court until last week, when Judge Townsend handed down an exhaustive opinion, holding with the Boyer people on every point and declaring that the Boyer tools did not infringe the American company's patent. The court also took occasion, in its opinion, to condemn the conduct of the complainant company in sending out the circulars above referred to for the purpose of scaring and intimidating purchasers of the Boyer tools.

During the years this litigation has been pending numerous competitors of the Boyer tools have sprung up, many of which are closely copied after the Boyer tools, and are claimed by the Boyer people to be infringements of the Boyer patents. Having successfully defended themselves against the attacks upon their tools, the Boyer people now propose to turn their attention to infringements of their own patents, and on Saturday last began suit in the United States Court at Chicago against the Standard Pneumatic Tool Co., manufacturers of the "Little Giant" pneumatic tools. The Chicago Pneumatic Tool Co. having been the pioneer in introducing pneumatic tools into railroad shops and metal working fields generally, and its Boyer tools having been the first successful tools for this work, is determined to protect the large business it has built up, and announces its intention of vigorously prosecuting in the future all imitations of its Boyer tools and infringements of its patents.

A PERSONAL OPINION.

President Hill, of the Great Northern Railroad, in a recent interview with the New York World delivered himself of some very plain-spoken and optimistic views. He modifies the old adage. "Nothing succeeds like success" by placing "hope, nerve and confidence" as the touchstones. Mr. Hill said:

"I know every mile of territory from the Pacific to Lake Superior and from Duluth to South Dakota; I have spent most of my life out there, and I have never seen such surprising prosperity as abounds in the Great Northwest at present. And I believe the prosperity has come to stay. I look for a continuous reign of good times for the next twenty years. Of course I am an optimist. I never yet met a man who amounted to anything who wasn't an optimist. Hope, nerve, confidence, all go together to make success. No man can remain in my employ for one hour who hasn't those three qualifications."

A LIBEL SUIT.

A libel suit for \$20,000 has been brought against the steamer Toltec and her consort, the schooner Zapotec, by the Paepcke-Leicht Lumber Co. and both vessels are tied up here, with a United States marshal aboard. The boats are owned by the Marine Transit Co. of Marine City, and the manager of the company arrived in the city Monday to give bond and permit the boats to proceed to their destination. The lumber firm alleges breach of contract, and it is understood that the vessel owners will bring in a countercharge. The boats were chartered by the lumber firm for the season to carry lumber from Duluth to Chicago. It is claimed that instead of going back light as the contract provided they carried grain to Buffalo or other ports. It is understood that the rate paid for the season for the lumber was \$1.80, as against a regular market rate at one time during the season of \$5. The vessel owners are understood to base their right to overstep the contract on the fact that the lumber company loaded a different sort of lumber than was named in the original contract.

Chicago Nautical School

1513 Masonic Temple,
CHICAGO.

W. J. WILSON,
(Late Lieutenant U. S. Navy),
Principal.

A full and complete course of instruction in lake and ocean navigation. Also special branches taught those desiring to qualify themselves for better positions in the marine service. \$200 in prizes (Great Lakes Register) awarded annually to students. Students taught by correspondence. Students may begin at any time. Send for circular.

MARINE REPAIRING AT MANITOWOC, WIS.

The Goodrich Transportation Co. are prepared to do all kinds of Repair Work to Machinery.
Also Joiner Work.

Goodrich Transportation Company's Repair Shops include complete Carpenter and Joiner Shop. New Modern Machine Shop. Blacksmith Shop, including Steam Hammer, Punch and Shears, etc., Brass Foundry.

Repair Shops are adjacent to Dry Dock and are equipped with best Modern Machinery. Portable Electric Drills, etc., complete Electric Power Plant for supplying motors on board ships, and lighting. Night work a specialty. All work in charge of experienced and skilled mechanics. Charges moderate. Twenty-one feet of water alongside of shops.

Know Your Own Ship

is a book valuable to the Vessel Owner, Master, Naval Architect, and, in fact, all interested in vessel handling and construction. A simple explanation of the stability, construction, tonnage and freeboard of ships. Specially arranged for the use of ships' officers, superintendents, draughtsmen and others. By Thomas Walton, naval architect; lecturer to ships' officers, government navigation school. Fourth edition greatly enlarged. Illustrated; cloth, \$2.50, by express prepaid.

THE MARINE RECORD,
Third Floor, Western Reserve Building,
Cleveland.

AN INSTRUCTIVE COLLISION CASE.

The "rule of the road" on the lakes, generally known as the White law, so nearly conforms to the international, or ocean code, that the following judgment will no doubt be found both interesting and instructive.

In the Admiralty Court, London, Mr. Justice Barnes, assisted by Trinity Masters, had before him the action of the owners of the late steamer Clan Macgregor and her master, officers, and crew, and the owners of the steamer Cathay. This was an action arising out of a collision between the Clan liner Clan Macgregor and the Danish vessel Cathay on September 4 last, off Cape St. Vincent, in a thick fog. The plaintiffs' vessel, a steamship of 3,000 tons gross and 1,924 tons net register, was on a voyage from India to London with a full cargo and 57 hands all told, and on September 4, at about eight o'clock, the lookout on the Clan Macgregor heard the whistle of the Cathay, and, according to their story, put the engines full speed astern and sounded three short blasts on her whistle. Collision was unavoidable, however, and the Cathay struck the Clan Macgregor abreast of the bridge on the starboard side, cutting her down below the water line. The Clan Macgregor shortly afterwards sank. Both vessels imputed careless navigation and bad lookout to each other. There was a counter claim.

In giving judgment his Lordship said that the evidence in the case had been put by counsel in a very small compass, but it was quite sufficient to enable the court to form an opinion about the case. The Clan Macgregor was off the coast heading on a course W. true, and making a speed of between three and four knots an hour. She was not going dead slow, for while the engineer said she was making 30 revolutions, he said she could make way at 20. The Cathay was heading S. 7 E. true, and was making, so they said, three knots. These two vessels were meeting on courses at nearly right angles to each other. They met in collision, the stem of the Cathay striking the starboard side of the Clan Macgregor abreast of the bridge with such force that the Clan MacGregor shortly afterwards sank before those on board of her could beach her on the coast, which was near at hand. The question then came to be in the case whether these vessels or either of them were to blame for not acting in such a way in accordance with the rules as would have avoided the collision. The court was of the opinion that both these vessels were to blame for what happened. Taking the case of the Clan Macgregor; first she was steering W., and heard the whistle of the Cathay on her starboard bow, and she in that position ought to have kept out of the way of the Cathay. Her master says that, having heard the whistle, he rang the telegraph, which was then standing at slow, to full speed ahead, and kept it so for 30 seconds. The engineer said it was for 20 seconds. The captain said he was hesitating as to what it was, and that was why he acted in that way, instead of stopping and reversing his engines. There was not the slightest doubt that the proper thing to do was to have stopped and reversed his engines under the 16th article. He (the judge) felt quite sure, and the Elder Brethren advised him, that had he done so the result would have been very different. The Cathay must also be held responsible for the collision. Their short story was that, having the vessel on this course, S. 7 E. true, he heard the whistle nearly four points on the port side, and he sounded in reply, and continued to whistle after that time. The master said that he heard the whistle

blown until the collision had happened. In the beginning he said the whistle was at the same bearing for about ten minutes, after that it began to broaden on the port side, and broaden more and more, and he thought the other vessel would go under his stern. The last time he heard it she was nearly abeam, about half a ship's length off. It was quite clear that the master misjudged the sound of the whistle entirely, because it was obvious on the course and speed that the whistle could not broaden in the way he said it did. The most probable thing was that the whistle remained at about the same bearing all through. It was suggested that the Cathay was right in keeping his course and speed up to the time he saw the vessel reversing for her. He (the judge) could not accept that view of the case at all. The 21st rule was a general rule, and applied generally, but it was qualified by the 16th article. He thought it would be dangerous to hold that in a fog so thick as this, when vessels could not be seen at more than half a ship's length, that the one which kept her course and speed is to be held justified in keeping it. He had not the slightest doubt that if the Cathay had stopped the collision would have been avoided. Both vessels must be found to blame.

THE IRON AND STEEL TRADE.

The world continues to marvel at the unexampled prosperity of the iron and steel industries. Never before in history has future production been so heavily mortgaged by existing claims. In some lines of iron and steel manufacture as among large engine builders, the entire output for 1900 is sold and contracts are being entered for the year 1901. And for the crude product itself the entire output for 1900 is now largely under contract. In reviewing this remarkable state of the iron and steel industries the Chicago Evening Post in a recent issue said:

"The iron and steel trade, the foundation of so many other great industries, has been attracting much attention and comment lately. It is likely to attract even more during the next year. The talk of a 'famine' in iron and steel will doubtless be revived before long, for the condition of the industry is truly extraordinary. The remaining two months of the present year will add a great deal to the obligations assumed by the manufacturers toward their patrons, for the steady rise in the prices of the steel products cannot fail to stimulate the conclusion of new contracts based on the ore output of 1901.

"What has caused this unprecedented demand? The business revival in this country is the chief factor and the enhanced foreign business comes next. A few years ago the excess of our imports of these products was so great that the contrast with existing conditions is startling and revolutionary.

"Of any reaction there is no sign. The experts are convinced that the prosperous condition will continue for several years. The substitution of steel cars for wooden cars, a new but growing practice, has created a new demand for steel, and the contracts made for steel rails are the heaviest on record. The shipbuilding and other industries are also calling for unusual quantities of steel.

"Railway managers look for three years of undiminished prosperity, and some have shown the strength of their faith by investing millions of new capital in improvements and repairs. The condition of the iron and steel trade is not exceptional; it reflects the general industrial situation."

TRADE NOTES.

The Baldwin Locomotive Works has just installed, in its erecting department, a crane of 158 feet span, which will lift a 196,000 pound engine 40 feet into the air, carry it 336 feet and set it down again in 3 minutes and 36 seconds.

The Niagara Falls Power Co. will duplicate its present plant, and the contract for constructing the new wheel pit was let last week. This pit will be 400 feet long, 20 feet wide and 180 feet deep, and will cost \$750,000. The work is to be started at once and finished by the spring of 1901.

The Rochester Machine Tool Works, Rochester, N. Y., are out with their fourteenth annual edition of price list and illustrated catalogue of their specialties, the Acme Engines and Boilers and the Buckley patent water tube boiler, also propeller wheels for yachts and small tonnage are the principal specialties turned out by this well known firm.

A new ore dock plant for the Hocking Valley Railway, at Toledo, Ohio, was placed in service this week. The machinery is of the Brown pattern, with traveling scoops, which pick up the ore in the hold of the vessel and transfer it to cars on the docks. The introduction of this machinery has increased the storage capacity of the docks from 60,000 to 250,000 tons.

The Bullock Electric Mfg. Co., Cincinnati, O., send us Bulletin No. 4934, illustrated. A marked feature of the firm's products is, that during construction, all of the machines are subjected to rigid tests, and a series of careful inspections, and when completed are run for a period of ten hours under various loads. Every machine must fully comply with the specifications under which it is sold before shipment is made. Thus by this careful method of test and inspection, patrons are relieved of the annoyance due to failure in this respect, and which is of such frequent occurrence where these precautions are not exercised.

Announcement is made of the organization of the New York Air Compressor Co., under the laws of the state of New Jersey. The capital stock of the company is \$100,000, and a complete foundry and machine shop plant has been purchased on the line of the New York & Greenwood Lake railroad, at Arlington, N. J. Contracts have already been let for a full modern equipment of tools. It is intended to manufacture a complete line of air compressing machinery at the new plant. The officers of the company are: J. W. Duntley, president; Alexander MacKay, vice president; W. P. Pressinger, secretary and treasurer. The directors are: J. W. Duntley, Alexander MacKay, W. P. Pressinger, William B. Albright, W. O. Duntley, Thomas Aldcorn and Austin E. Pressinger. The New York offices of the company are at 120 Liberty street.

A SUIT for personal damages will be brought by the widow of Cecil Beach against the schooner Charles Wall. Beach was employed as a sailor on the Wall and lost his life through an accident while in the performance of his duty. With two other sailors, Beech was employed in scraping down the mast. They were suspended in their work on a triangular platform from the masthead. The ropes holding the platform broke and the men were precipitated toward the deck. One man saved himself by grasping a stay and the other caught some ropes in his fall. Beach fell on the deck and was injured fatally. Mrs. Beach is now engaged in gathering testimony in the case.

TREASURY DECISIONS.

CERTIFICATE OF TITLE.

A fee should be collected for certificate of title to a vessel of the United States given to a mortgagee.

TREASURY DEPARTMENT, November 7, 1899.

Sir: This department is in receipt of your letter, dated the 3d instant, inquiring whether "the fee of one dollar for abstract of title of a vessel should be collected from all persons other than the owner or mortgagee of a vessel, for whom an abstract is made."

You are informed that the fee should be collected in all such cases, except for certificate of title when such services are "to a vessel of the United States" within the meaning of section 1 of the act of June 19, 1886. The granting of such a certificate to an owner of a vessel of the United States would be a service to the vessel, but the issue of the certificate to a mortgagee of such vessel would not necessarily constitute such a service, and the fee should be collected. * * *

Respectfully, O. L. SPAULDING, Assistant Secretary.
Collector of Customs, Buffalo, N. Y.

EXAMINATION OF DISCHARGED ALIEN SEAMEN.

Seamen, after being discharged, are aliens and amenable to the provisions of section 1 of the act approved March 3, 1891, and acts amendatory thereof, and are subject to examination as such.

TREASURY DEPARTMENT, November 2, 1899.

Sir: The Department acknowledges the receipt of your communication of the 30th ultimo, together with the inclosures referred to therein, reporting the result of an inquiry made by you into the circumstances of landing at your port by the British bark Lancashire of 14 members of her crew, without examination as to their fitness to land, under the provisions of the United States immigration laws and regulations.

Your statement as to the ultimate disposition of said sailors by their re-embarkation upon other vessels, as well as those in regard to their not being either paupers or likely to become public charges, have been duly noted, as well as your remarks regarding the authority of consuls of foreign countries under treaty provisions therewith. These statements, however, do not in any way affect the question under consideration, which relates to the status of the seaman after his discharge. It has been held that a seaman, after being discharged, is simply an alien and subject to the provisions of section 1 of the act approved March 3, 1891, and acts amendatory thereof, as to the examination prescribed in order to determine whether, as an alien, he is entitled to admission into this country. You will see by referring to said act that various other disabilities are mentioned in addition to that of pauperism, such as being afflicted with a loathsome or a dangerous contagious disease, having been convicted of an offense other than political involving moral turpitude, etc., and the circumstance that these sailors in the present instance did not become public charges does not preclude the possibility that they might have become such, or that they might have been among some of the other excluded classes, or, therefore, remove the necessity for their examination.

If a contrary view were taken, you will readily see that, by collusion with shipowners or masters of vessels, it would be quite possible to effect the landing of aliens who are for-

bidden by law to come to this country, simply through the device of signing them for the inward trip as seamen.

In view, therefore, of these considerations, it is directed that you take steps hereafter in all cases for the examination of discharged seamen at your port and in other respects fulfill all the requirements of the immigration laws and regulations.

Respectfully, H. A. TAYLOR, Assistant Secretary.
Collector of Customs, Mobile, Ala.

SUN'S AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation. A second bearing may be taken by compass at sunset, by reversing the east bearing given for the nearest latitude, as the change in declination for a few hours makes but a slight difference in the true bearing of the Sun's setting. The bearing may be taken when the Sun's center is on the horizon, rising or setting. The three elements which may be obtained by taking these amplitudes are the quantities known as local attraction, variation and deviation.

LAKE ERIE AND S. END LAKE MICHIGAN, LAT. 42° N.

Sunrise.	Amplitudes.	Bearing P'ts.	Bearing Comp.
Nov. 16.....	E. 26° S. =	S. 5½ E. =	E. S. E. ¾ S.
Nov. 20.....	E. 27° S. =	S. 5½ E. =	E. S. E. ¾ S.
Nov. 24.....	E. 28° S. =	S. 5½ E. =	E. S. E. ½ S.

LAKE ONTARIO, S. END HURON AND CENTRAL PORTION LAKE MICHIGAN, LAT. 44° N.

Sunrise.	Amplitudes.	Bearing P'ts.	Bearing Comp.
Nov. 16.....	E. 27° S. =	S. 5½ E. =	E. S. E. ¾ S.
Nov. 20.....	E. 28° S. =	S. 5½ E. =	E. S. E. ¾ S.
Nov. 24.....	E. 29° S. =	S. 5½ E. =	E. S. E. ¾ S.

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

Sunrise.	Amplitudes.	Bearing P'ts.	Bearing Comp.
Nov. 16.....	E. 28° S. =	S. 5½ E. =	E. S. E. ½ S.
Nov. 20.....	E. 30° S. =	S. 5½ E. =	E. S. E. ¾ S.
Nov. 24.....	E. 31° S. =	S. 5½ E. =	E. S. E. ¾ S.

LAKE SUPERIOR, LAT. 48° N.

Sunrise.	Amplitudes.	Bearing P'ts.	Bearing Comp.
Nov. 16.....	E. 29° S. =	S. 5½ E. =	E. S. E. ¾ S.
Nov. 20.....	E. 31° S. =	S. 5½ E. =	E. S. E. ¾ S.
Nov. 24.....	E. 32° S. =	S. 5½ E. =	E. S. E. ¾ S.

With a compass correct magnetic, the difference between the observed and true bearing or amplitude will be the variation for the locality. Should there be any deviation on the course the vessel is heading at the time of taking the bearing, the difference between the observed and the true amplitude after the variation is applied will be the amount of deviation on that course. If the correct magnetic bearing is to the right of the compass bearing, the deviation is easterly, if to the left, the deviation is westerly.

Practice in Admiralty—Method of Taking Depositions.—Rev. St. § 866, authorizing any of the courts of the United States to issue commissions to take depositions "according to common usage," does not require a court of admiralty to conform to the practice in the state courts, and it may by rule provide a different method for taking depositions. The Westminster, 96 Fed. Rep. (U. S.) 766.

EASTERN FREIGHTS.

Messrs. Funch, Edye & Co., New York, in their usual weekly freight report to the RECORD state as follows:

"Since our last report, the freight market has continued narrowing down. Grain freights have further weakened, since shippers are now faced, in addition to the irregularity in the delivery of grain at the seaboard, by a very pronounced decline in the demand abroad for our cereals. Cotton freights at the Atlantic ports, unfortunately, are still unable to offer any relief from the dullness of the markets on the northern seaboard. Freights in the Gulf ports show some signs of recovery, but fresh business can only be effected at a marked reduction from hitherto nominal quotations, and these owners now appear more inclined to agree to. Rates for time charter have declined in measure with the underlying freights obtainable for general business, and for longer periods have fallen to 7s. 3d. @ 7s. 6d. The general market, unfortunately, presents but few satisfactory outlets for boats disinclined to turn to grain cargoes at low figures or to business from the Gulf at rates now obtainable.

"Regarding sailing vessels we can only repeat that the market remains exceedingly firm, but the enhanced ideas of owners restricts business for the future, while spot tonnage continues very scarce. Rates for general cargo vessels to the colonies and for case oil to the east are extremely firm, but, under existing circumstances, very little can be done at the moment. Lumber freights from the Gulf are also firm, but business in this line is restricted by the strike of the lumber handlers, while rates from eastern ports have not undergone any important change. Naval stores freights about hold their own, though occasionally a vessel, when of suitable size, quality, and in the right position, may be able to obtain a slight advance.

MARINE PATENTS.

Patents issued Nov. 7, 1899. Reported specially for THE MARINE RECORD complete copies of patents furnished at the rate of ten cents each.

- 636,382. Decking for boats. R. B. Hamel, Bellport, N. Y.
- 636,412. Water-bicycle. Andreas Marx, Furstenberg, Germany.
- 636,467. Steamship and propelling apparatus. Charles Sterner, Orange Valley, N. J.
- 636,479. Manual propelling mechanism for boats. C. R. Willis, Mansfield, Mass.
- 636,488. Propeller. Giacomo Catanzano and Gerolamo Catanzano, Newton, Mass.
- 636,495. Buoyant twin-screw vessel. W. W. Dawley, Buffalo, N. Y.
- 636,626. Self-propelling dredge-boat and jetty. Joseph Brown, St. Louis, Mo.
- 636,653. Bow-facing oar. J. D. Foster, Chattanooga, Tenn.
- 636,699. Towing-indicator. C. W. Shaw, Philadelphia, Pa., assignor of one-half to J. L. Van Thuyne, same place.
- 636,774 and 636,775. Dredging apparatus. Joseph Edwards, New York, N. Y.
- 636,893. Balanced floating apparel. G. D. Burton, Boston, Mass.
- 637,050. Bridge. Montgomery Waddell, New York, N. Y.
- 637,051. Propelling apparatus. Carl Wasek, Patterson, N. J.
- 637,052. Boat. G. M. Waters, Moline, Ill.

TOBIN BRONZE

(Trade-Mark Registered.)

Tensile strength of plates one-quarter inch thick, upward of 78,000 lbs. per square inch. Torsional strength equal to the best machinery steel. Non-corrosive in sea water. Can be forged at cherry red heat. Round, Square and Hexagon Bars for Bolt Forgings, Pump Piston Rods, Yacht Shafts, etc. Rolled Sheets and Plates for Pump Linings and Condenser Tube Sheets, Centerboards, Fin Keels and Rudders.

The Ansonia Brass & Copper Co.

SOLE MANUFACTURERS,

Send for Pamphlet.

99 John St., NEW YORK.

S.F. HODGE & CO.

MARINE ENGINES,
PROPELLER WHEELS,
DECK HOISTERS,
MARINE REPAIRS.
312 ATWATER STREET,
DETROIT, MICH.

Chas. E. & W. F. Peck,

58 William Street, New York City.

Royal Insurance Building, Chicago, Ill.

C. T. BOWRING & CO.

5 and 6 Billiter Avenue, E. C.,

London, England.



Insurance

BROWN & CO., - - - 202 Main Street, Buffalo, N. Y.
PARKER & MILLEN, 15 Atwater Street, W., Detroit, Mich.
J. G. KEITH & CO., - 138 Rialto Building, Chicago, Ill.
LA SALLE & CO., Board of Trade Building, Duluth, Minn.

Are prepared to make rates on all classes of Marine Insurance on the Great Lakes, both CARGOES AND HULLS.

The Salvage Association of North America.

INCORPORATED 1899.

AN ASSOCIATION FOR THE PROTECTION OF UNDERWRITERS' INTERESTS AS REGARDS WRECKED AND DAMAGED PROPERTY AT SEA.

Application for the services of surveyors of this Association may be made to either the Chicago or New York offices.



Chicago Office,

ROYAL INSURANCE BLDG.

New York Office,

MUTUAL LIFE INS. CO. BLDG.

Prominent Fueling Firms==Docks and Lighters.



Steamboat Fuel at Chicago.

YOUGHIOGHENY and
LEHIGH COAL CO.

J. T. CONNERY, Manager. ARCHIE J. HITCHCOCK, Dock Supt.
MAIN OFFICE: 1238-1242 Chicago Stock Exchange Building.
Long Distance Telephone, Main 5049. 110 LA SALLE STREET.

FUEL DOCKS: No. 1, Michigan Slip and Basin. 'Phone 3046, Main.
No. 2, N. Halstead St. Bridge. 'Phone 773, North.
FUEL LIGHTER: Equipped with 125 2-ton Buckets for
Fueling anywhere in Harbor

WE PRODUCE OUR YOUGHIOGHENY



Steamboat Fuel at Cleveland.

THE PITTSBURGH &
CHICAGO GAS COAL CO.

J. A. DONALDSON, Manager. N. J. BOYLAN, Fuel Manager.
OFFICE: 420-421 PERRY-PAYNE BUILDING.
TELEPHONE, MAIN 1888.

FUEL DOCKS: No. 1, River Bed, through Valley R. R. Bridge. } Telephone,
No. 2, Main River, Foot of West River Street. } West 190.
FUEL LIGHTER: 300 Tons Capacity; Fuel Anywhere in the Harbor.

WE PRODUCE OUR YOUGHIOGHENY COAL, AND GUARANTEE QUALITY.

PICKANDS, MATHER & Co.

PIG IRON.
IRON ORE AND COAL.

FUEL LIGHTERS

AT BUFFALO,
ERIE,
ASHTABULA,
AND CLEVELAND.

At DETOUR, MICH., A FUEL DOCK equipped with
Shute capacity of 600 Tons.
Best Quality PITTSBURGH COAL furnished at any
time during Day or Night.

WESTERN RESERVE BUILDING, CLEVELAND, O.

THE W. L. SCOTT COMPANY,

ERIE, PA.

WHOLESALE DEALER IN

Shamokin-Wilkes Barre ANTHRACITE.

Youghiogheny, Mansfield, PITTSBURG.

Vessel Fueling a Specialty

by steam lighter or car dump,
at all hours. Electric light.

MAIN OFFICE: SCOTT BLOCK. LONG DISTANCE 'PHONE 440.

FUELING OFFICE: CANAL DOCK. LONG DISTANCE 'PHONE 320.

...Coals

M. A. HANNA & Co.

COAL, IRON ORE AND PIG IRON.

Steamboat Fuel at Ashtabula.

Large Supplies of Best Quality.

Fuel scow with elevators and discharging
spouts. Storage of 650 tons. Discharges
150 tons an hour into steamers while
unloading cargo.

LIGHTER

carrying different grades
at all times.

MINERS AND SHIPPERS.

MAIN OFFICE, Perry-Payne Bldg., Cleveland, O.

Youghiogheny River Coal Co.

MINER AND SHIPPER OF

OCEAN MINE COAL.

YOUGHIOGHENY
GAS AND STEAM

General Office:
Erie, Pa. Long Distance 'Phone 409.

Shipping Docks:
Ashtabula, O. Long Distance 'Phone 76.

VESSELS FUELED AT ALL HOURS

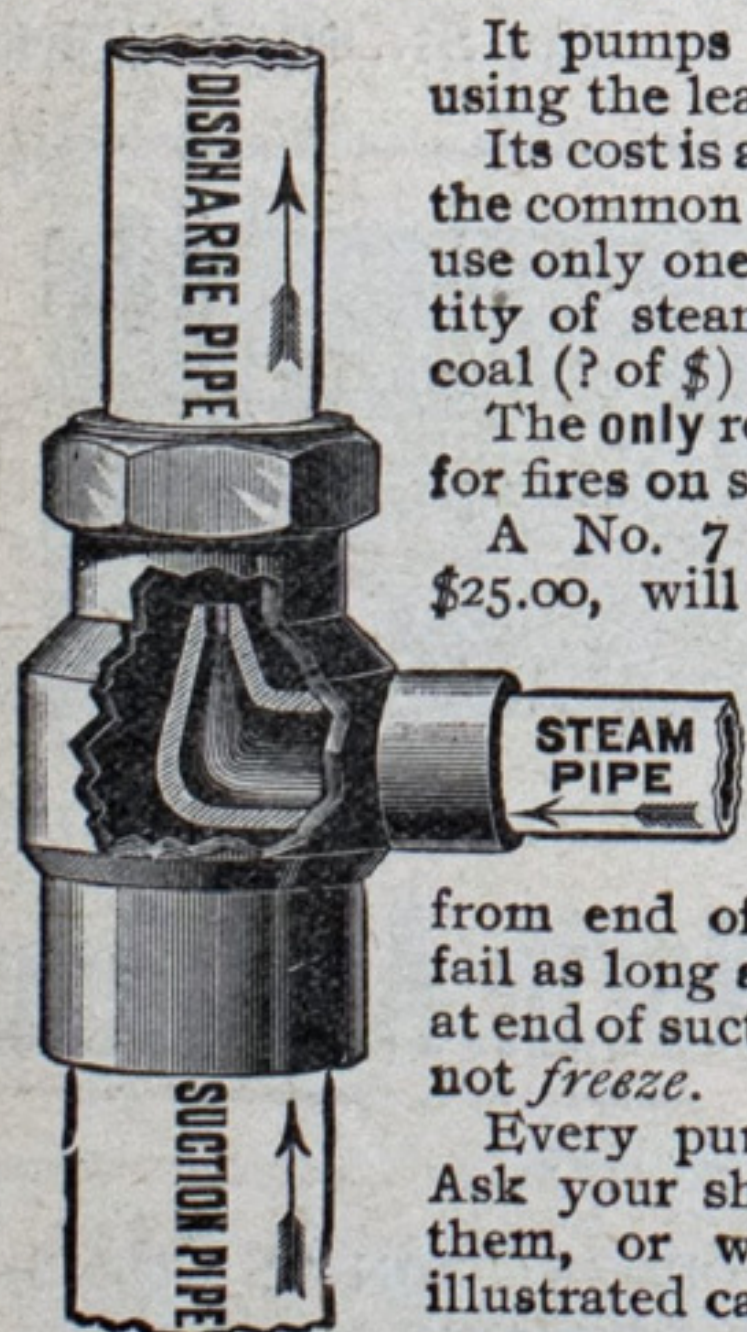
ELECTRIC LIGHT.

WITH OCEAN COAL ONLY,
BY STEAM LIGHTER OR CAR DUMP

Use the Vanduzen
Steam Jet...

PUMP

THE BEST STEAM JET PUMP IN THE WORLD.



It pumps the most water
using the least steam.

Its cost is a little more than
the common syphon, but will
use only one-third the quan-
tity of steam; and it takes
coal (? of \$) to make steam.

The only reliable Jet Pump
for fires on steam vessels.

A No. 7 Pump, costing
\$25.00, will force water
through 50 feet
of hose and
throw a 3/4-inch
solid stream of
water 75 feet
from end of nozzle without
fail as long as there is water
at end of suction pipe. It will
not freeze. Has no valves.

Every pump guaranteed.
Ask your ship chandler for
them, or write to us for
illustrated catalogue.

THE E. W. VANDUZEN CO., CINCINNATI, O.

The Cuddy-Mullen Coal Co.

Miners and
Shippers of

STEAM COAL

FUELING DEPARTMENT
FACILITIES. * * * *

CLEVELAND HARBOR.—Car Dumper; Eight Pockets, 1000 Tons Capacity; Lighter
Steam Derricks.

DETROIT RIVER BRANCH.—Amherstburg; Four Pockets; Three Steam Derricks
SANDWICH—Fourteen Pockets and Two Steam Derricks.

"SOO" RIVER BRANCH.—Two Docks, (Formerly known as the Anthony and Watson
Docks,) Equipped with Pockets and Steam Derricks.

GOOD
COAL.

COURTEOUS
ATTENTION

QUICK
DISPATCH.

General Offices, Perry-Payne Bldg., Cleveland, O.

PATENTS

Procured on Inventions
and Designs. Labels,
Prints and Trade Marks
Registered.

Sixteen Years' Experience.

R. W. BISHOP, - Washington, D. C.

\$2.00 Pays for 52 copies of
The Marine Record in-
cluding Supplements.

**PRACTICAL
MECHANICS.**

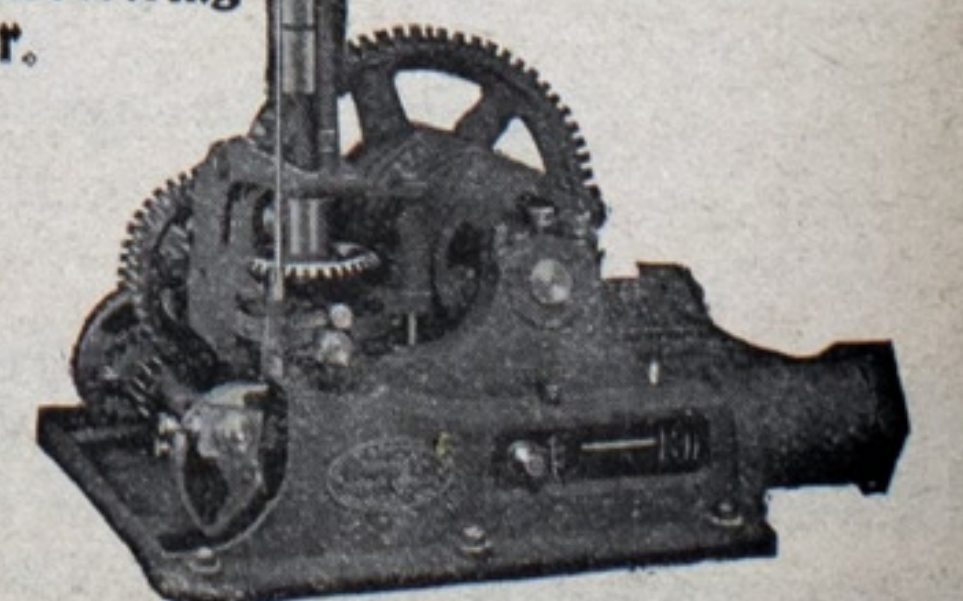
Applied to the requirements
of the sailor. By Thos. Mc-
Kenzie. Illustrated; 12 mo.;
cloth, \$1.50, by mail prepaid.
The Marine Record, Western
Reserve Bldg., Cleveland, O.



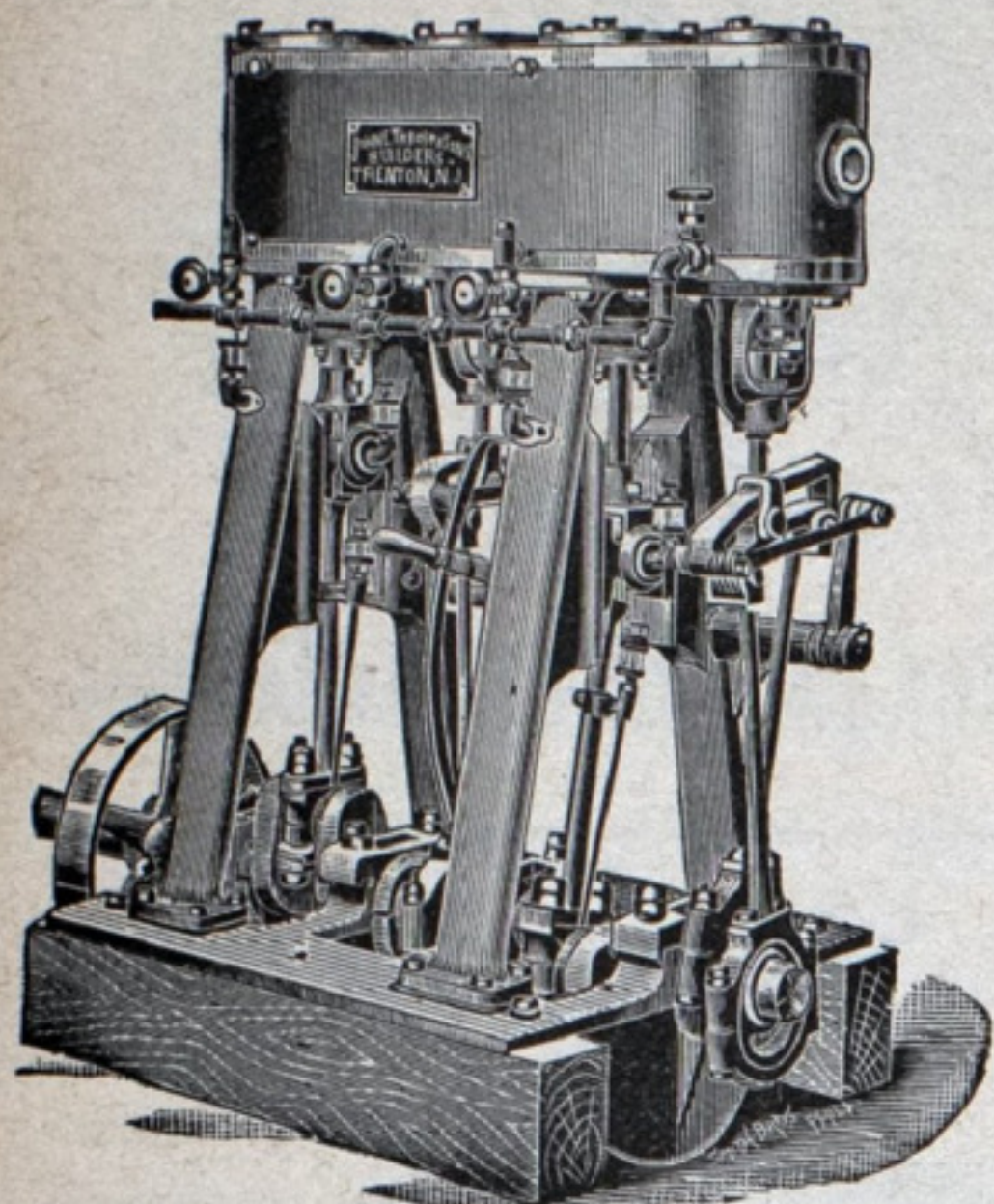
Simplest,
Strongest
and most
Reliable.
Changed
from Steam
to Hand or
back by one
lever in less
than one
Second.

No. 8
Beck Patent
Steam and
Hand Steering
Gear.

BUILT BY
Pawling & Harnischfeger,
Milwaukee, Wis.



John E. Thropp & Sons' Co.



BUILDERS OF
Compound and Triple Expansion
ENGINES,

Boilers, Surface Condensers, Propeller
Wheels, Etc.

Contracts taken for yachts and tugs
complete. Send for photographs of En-
gines and descriptive pamphlet.

Works on Delaware & Raritan Canal Basin.
TRENTON, N. J.

THE KENNEY FLUSHOMETER

FOR FLUSHING WATER CLOSETS.

No Cup Leathers or Springs.

THE BEST SYSTEM EVER INVENTED FOR USE ON
STEAM VESSELS.

Owners and constructors of Steamships, Yachts and
Steamboats have found it indispensable. Used by
the U. S. War and Navy Departments. Transports
Grant, Sheridan, Burnside, Terry, Hooker, Thomas,
Sedgewick, Meade, McClellan, Sherman, Crook.
Also Albany Day Line Steamers and others.

THE KENNEY FLUSHOMETER

Is Patented and Manufactured only by

THE KENNEY CO.,

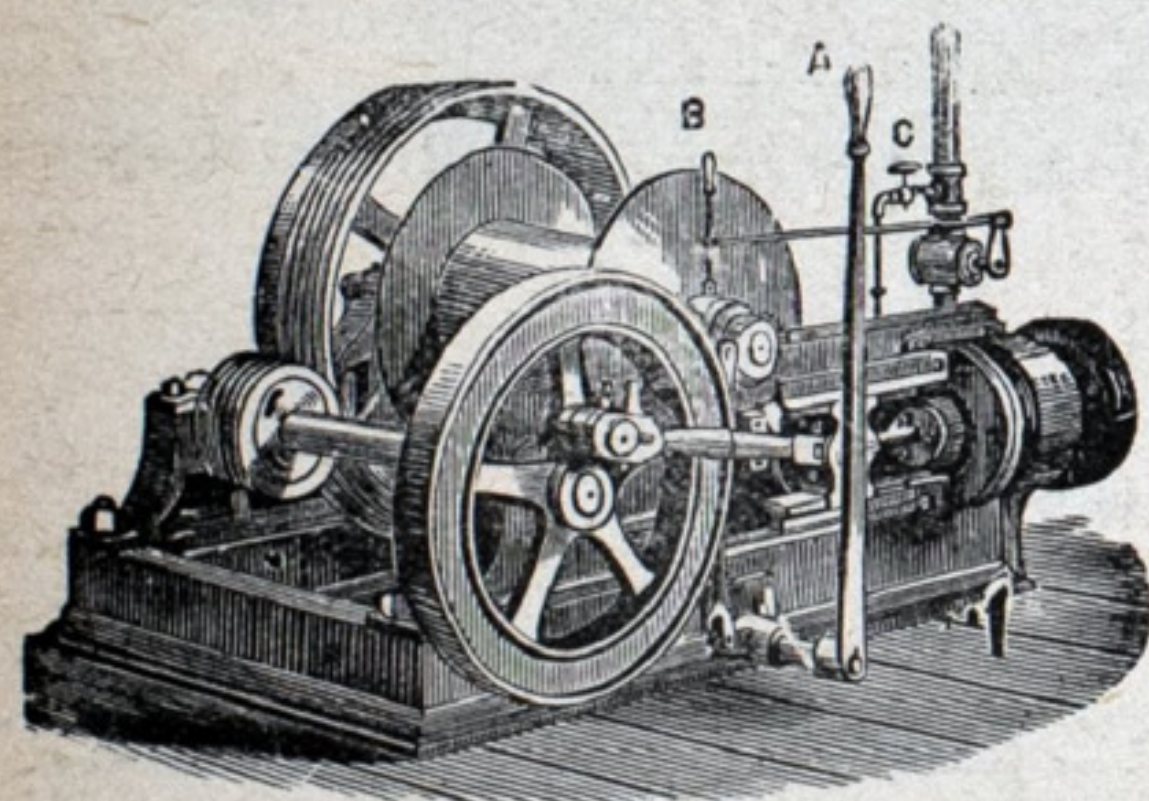
Who guarantee the successful operation of the system.

Send for illustrated pamphlet,

THE KENNEY COMPANY,
72-74 Trinity Place, NEW YORK.

WILLIAMSON BROS.

COR. RICHMOND AND YORK STS.,
Philadelphia, Pa.



HOISTING and SHIP ENGINES
STEERING ENGINES.

With either Fractional, Spur or Worm Gear of
Various Patterns to Suit all Purposes.

Compasses Adjusted

For deviation, and deviation
tables supplied. Great facilities
for doing the work by day or
night.

John Maurice.

Office, 24-26 Market St., CHICAGO.
Residence, 1213 Albany Avenue.

Scott's Coast Pilot for the Lakes.

Price, \$1.50.

For Sale by
THE MARINE RECORD,
Western Reserve Building, Cleveland.

JOHN DONNELLY, SR., PRES.
JOHN DONNELLY, JR., VICE PRES.

H. B. FOLGER, TREAS.
THOS. DONNELLY, SECY.

THE DONNELLY SALVAGE AND WRECKING CO., Ltd.

KINGSTON, ONT.

EXPERIENCED DIVERS, TUGS, STEAM PUMPS, ETC.,
SUPPLIED ON SHORTEST NOTICE.

NEVERSINK CORK JACKET AND LIFE BELT.

Warranted 24 lb. Buoyancy and full Weight of Cork, as required by U. S. Inspectors. Consolidated Cork
Life Preservers. Superior to all others. Rings Buoys and Fenders. SAFEST CHEAPEST.
Approved and adopted by U. S. Board of Supervising Inspectors.
Also adopted by the principal Ocean, Lake and River Steamer Lines as
the only Reliable Life Preserver. Vessels and trade supplied. Send for
Catalogue.
Awarded four medals by World's Columbian Exposition.



METALLIC
and
WOODEN
LIFE
BOATS.



Metallic Life Rafts, Marine Drags.

Manufacturer of Woolsey's Patent Life Buoy, which is the lightest,
cheapest and most compact Life Raft known. Send for illustrated cata-
logue. Get our prices before buying elsewhere.

D. KAHNWEILER'S SONS, 437 Pearl St., New York City.

SHERIFFS MFG. CO.

ESTABLISHED 1854.

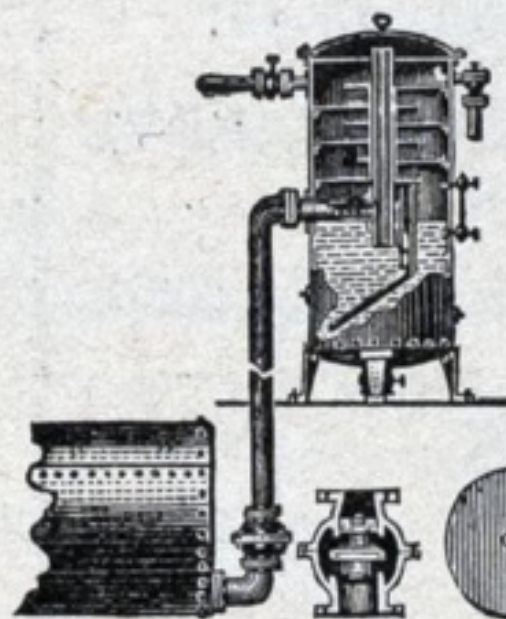


MILWAUKEE, WIS.

THE CHASE MACHINE COMPANY, ENGINEERS AND MACHINISTS.

MANUFACTURERS, UNDER THE CHASE PATENTS, OF
Fog Whistle Machines, Hoisting Engines, Steering Engines, Automatic Towing Engines,
Power and Drop Hammers, and other Machinery. Engineers' Supplies and General Jobbing.

111 ELM STREET. TELEPHONE, MAIN 994. CLEVELAND, O.



Buffalo Feed Water Heater AND PURIFIER.

Made in all Sizes and to Suit all Conditions.

ROBERT LEARMONTH,

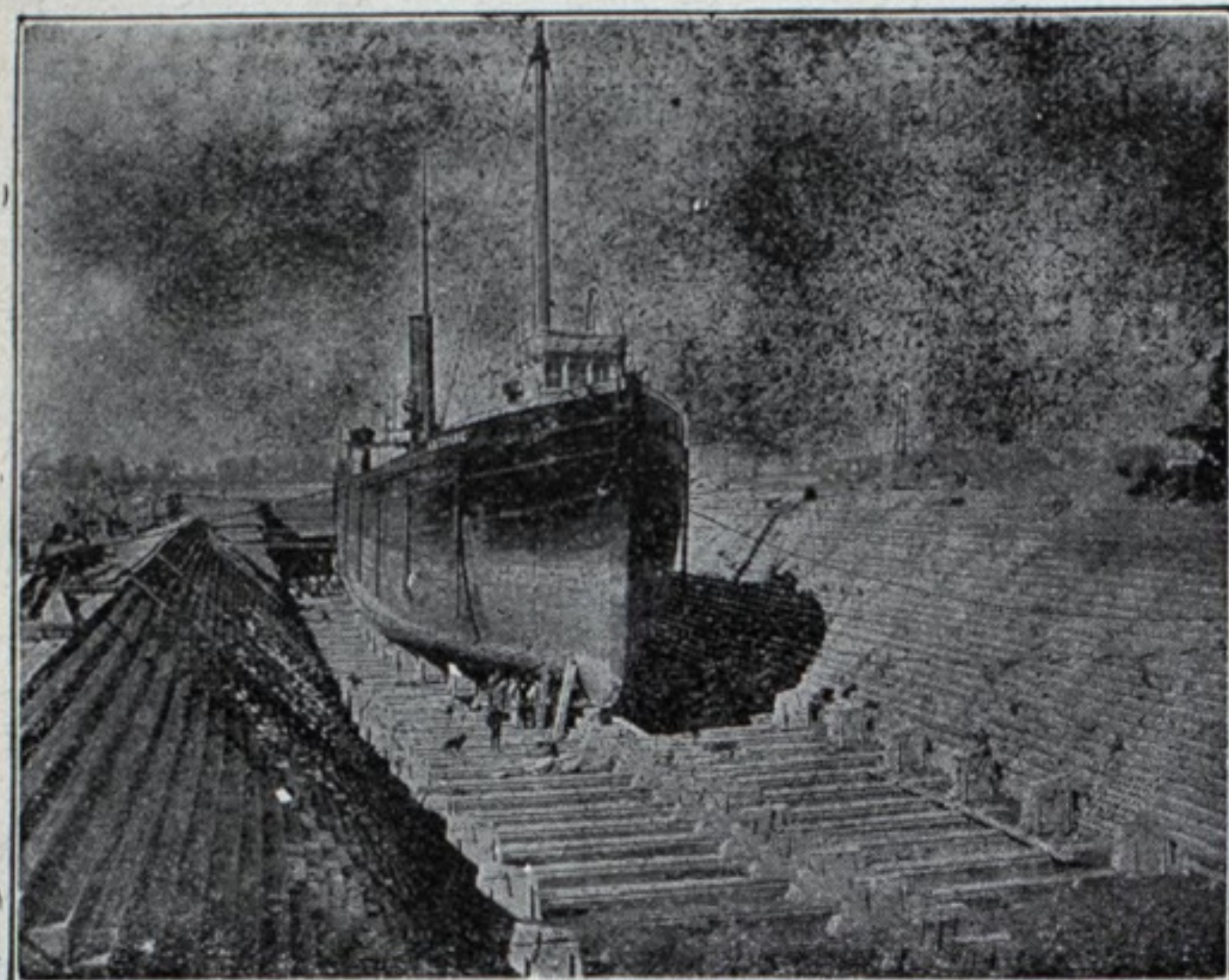
200 Bouck Ave., BUFFALO, N. Y.

Send for Catalogue.



For Stationary, Portable,
Traction Engines, Tugboats, &c.
Thoroughly Reliable—Perfectly Automatic.
JENKINS BROS., - Selling Agents,
NEW YORK, BOSTON, PHILA., CHICAGO.





Craig Ship Building Co.

TOLEDO, OHIO.

New Dry-Dock 450 feet long, 110 feet wide on top, 55 feet wide on bottom, 16 feet water on sill.

Repairs to Metal and Wooden Ships a Specialty.

**Metal
and Wooden
Ship Builders.**



Simpson Dry-Dock Co.
General Contractors and Consulting Engineers,
BUILDERS OF
Simpson's Patent Dry-Dock,
35 BROADWAY, NEW YORK.

THE BEST BOOK OF AMERICAN LAKE SHIPPING.

BEESON'S MARINE DIRECTORY FOR 1899.

A cloth bound, gilt embossed volume of 260 pages, containing alphabetically arranged lists of all American steam and sail vessels on the Northwestern lakes, giving tonnage, length, breadth and depth of each, place and year of build, and name and address of managing owner. These lists are the originals published annually and are not taken from other publications. Their correctness is all that can be possibly obtained in a technical work. Many miscellaneous features are comprehended in its contents. Among them a list of American lake ports, with description of each, numbering over two hundred.

Mailed to any address, postage prepaid, on receipt of subscription, \$5.00.

The Marine Record, THIRD FLOOR, WESTERN RESERVE BUILDING, CLEVELAND, O.

LIFE BOATS.

YAWLS.

LIFE RAFTS.

DETROIT BOAT WORKS

DETROIT, MICH.

STEEL, IRON AND WOODEN TUGS.

STEAM AND SAIL YACHTS.

ALL KINDS OF PLEASURE BOATS, FISHING AND HUNTING BOATS, SHELLS, BARGES, GIGS AND CANOES.

Safety Hollow Staybolts

Guaranteed to meet Government Specifications and Inspection.



MANUFACTURED FROM BEST QUALITY STEEL OR CHARCOAL IRON.

FALLS HOLLOW STAYBOLT CO.,

Cuyahoga Falls, O.

Write for Samples and Prices.

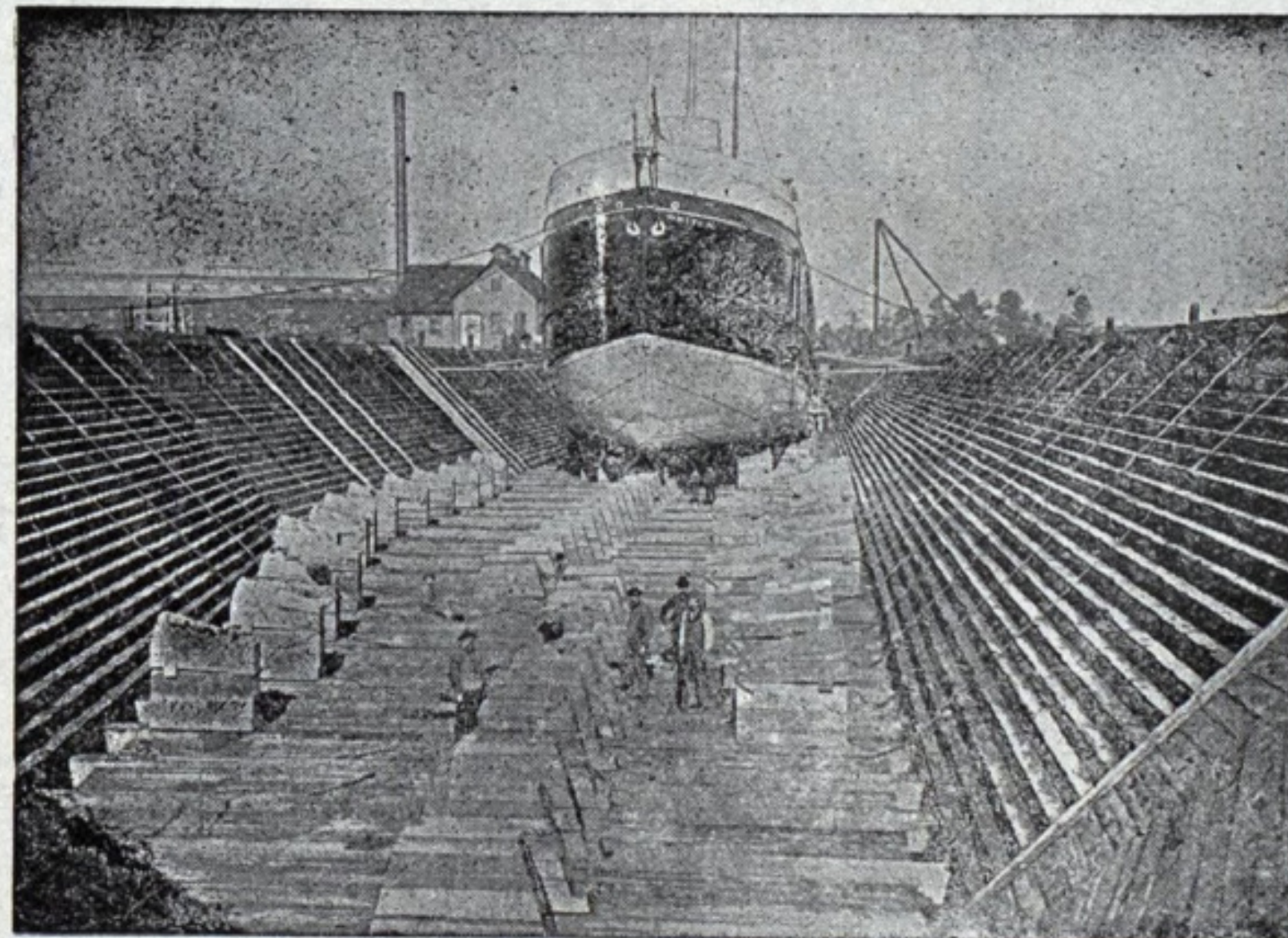
Superior Ship Building Co.

STEEL AND METAL SHIPS

Of all Classes built on shortest possible notice at our yards at WEST SUPERIOR, WIS., and also at EVERETT, WASH.

PHOTOGRAPH OF 300-FOOT BOAT IN DOCK.

Plates and Material always on hand to repair all kinds of Metal Ships in Shortest Time.



Best Quality of Oak in Stock for Repairing Wooden Vessels of all Classes.

SIZE OF DOCK			
Length, Extreme.....	587 feet.	Entrance, Top.....	55 feet 9 in.
Breadth, Top.....	90 " 4 in.	Entrance, Bottom.....	50 "
Breadth, Bottom.....	52 "	Depth over Sills.....	18 "

LARGEST DRY-DOCK ON THE LAKES.

Prices for Repairs and Docking same as at Lower Lake Ports.

SUPERIOR, WIS.

A Number of Propeller Wheels in Stock at Dry-Dock.

Send Us

Only a \$1.00

for a copy of

THE SLIDE VALVE.



Simply Explained and Illustrated by
TENNANT & KINEALY.

Spon & Chamberlain,

12 CORTLANDT ST., N. Y.

50 YEARS' EXPERIENCE

PATENTS

TRADE MARKS
DESIGNS
COPYRIGHTS & C.

Anyone sending a sketch and description may quickly ascertain our opinion free whether an invention is probably patentable. Communications strictly confidential. Handbook on Patents sent free. Oldest agency for securing patents. Patents taken through Munn & Co. receive special notice, without charge, in the

Scientific American.

A handsomely illustrated weekly. Largest circulation of any scientific journal. Terms, \$3 a year; four months, \$1. Sold by all newsdealers.
MUNN & Co. 361 Broadway, New York
Branch Office, 625 F St., Washington, D. C.

NAVIGATION. Theoretical and practical. By D. Wilson Barker, R. M. R., and William Allingham. Illustrated; 12 mo.; cloth, \$1.50 by mail prepaid.
THE MARINE RECORD,
Western Reserve Bldg. Cleveland, Ohio.

The Nickel Plate Road

offer one and one-third fare for the round trip Nov. 29th and 30th, good returning until Dec. 1st, inclusive, account Thanksgiving Day. Tickets available within a radius of 150 miles. Inquire Agents. 167-48

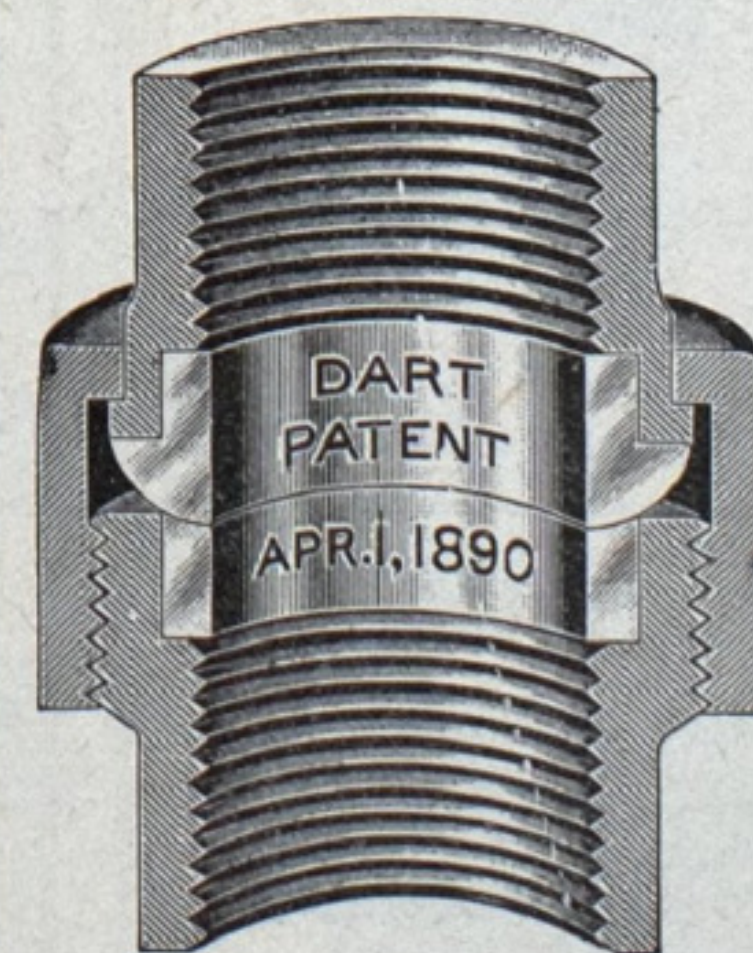
Elementary Seamanship.

By D. Wilson Barker. Illustrated; 12 mo.; cloth, \$2.00 by mail prepaid.

THE MARINE RECORD,
Western Reserve Bldg., Cleveland, Ohio.

OHIO AND INDIANA GAME LAW.

From Nov. 9th to Dec. 1st, inclusive, excursion tickets for parties of three or more traveling together on one ticket at one fare for the round trip will be sold to points in Western Ohio and Indiana on the Nickel Plate Road. The immense quantities of small game along the line of the Nickel Plate Road affords rare enjoyment to the sportsman. 168-48



**The
Best
Union**

Made in the U. S.

Mnfd by the
**E. M. Dart
Mfg. Co.**

Providence R. I.
Send for circulars and prices.

